

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188		
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</small>					
1. REPORT DATE (DD-MM-YYYY) 15-05-2008		2. REPORT TYPE FINAL REPORT		3. DATES COVERED (From - To) JULY 2007 to JULY 2008	
4. TITLE AND SUBTITLE THE EFFECTS OF A CUSTOMER SERVICE INITIATIVE AT MONCRIEF ARMY COMMUNITY HOSPITAL			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
			5d. PROJECT NUMBER		
6. AUTHOR(S) BARIDO, GEORGE T., MAJ, MS			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
			8. PERFORMING ORGANIZATION REPORT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) MONCRIEF ARMY COMMUNITY HOSPITAL 4500 STUART STREET FORT JACKSON, SC 29207			10. SPONSOR/MONITOR'S ACRONYM(S)		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) US ARMY MEDICAL DEPARTMENT CENTER AND SCHOOL BLDG 2841 MCCS-HFB ARMY-BAYLOR PROGRAM IN HEALTH AND BUSINESS ADMINISTRATION 3151 SCOTT ROAD, SUITE 1411 FORT SAM HOUSTON, TX 78234-6135			11. SPONSOR/MONITOR'S REPORT NUMBER(S) 16-08		
12. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE, DISTRIBUTION UNLIMITED					
13. SUPPLEMENTARY NOTES THE ORIGINAL DOCUMENT CONTAINS COLOR IMAGES					
14. ABSTRACT In November 2006, Moncrief Army Community Hospital (MACH) instituted a customer service initiative intended to improve overall patient satisfaction by changing the behavior of front-desk clerks. The initiative involved front-desk clerks offering every outpatient customer an Interactive Customer Evaluation (ICE) comment card upon completion of their ambulatory visit. Implementation priority was given to the Urgent Care Clinic (UCC) and the Family Health Clinic (FHC). The purpose of this case study is to examine the actual consequences of implementing the ICE card initiative to determine the potential usefulness of this customer service initiative in other AMEDD facilities. The ICE card results indicate that ICE card overall satisfaction and staff attitude scores increased in each of the clinics when evaluated from one year to the next; however, these results have limited power and reliability based on the few number of responses prior to the initiative. The APLSS results indicate that while staff courtesy and helpfulness is a significant predictor of overall satisfaction and the ICE card initiative did improve staff courtesy and helpfulness, the initiative did not improve staff courtesy and helpfulness enough to make a significant contribution to overall satisfaction. Based on these results, the author recommends utilizing the ICE card initiative to improve ICE card results; however, further research with a larger sample size is necessary to determine whether the ICE card initiative actually improves staff courtesy and helpfulness significantly enough to recommend implementation at other clinics or facilities.					
15. SUBJECT TERMS PATIENT SATISFACTION; COMMENT CARD; ARMY PROVIDER LEVEL SATISFACTION SURVEY (APLSS); STATISTICAL MODELING; CUSTOMER SERVICE; COURTESY AND HELPFULNESS; STAFF ATTITUDE					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
Unclassified					EDUCATION TECHNICIAN
a. REPORT	b. ABSTRACT	c. THIS PAGE	UU	54	19b. TELEPHONE NUMBER (include area code)
U	U	U			(210) 221-6443

Army-Baylor University Graduate Program in Health and Business Administration

The Effects of a Customer Service Initiative at Moncrief Army Community Hospital

A Graduate Management Project
Submitted to:

Dr. A. David Mangelsdorff

April 6, 2008

By
Major George T. Barido
Administrative Resident
Moncrief Army Community Hospital
4500 Stuart Street
Fort Jackson, SC 29207
803-751-2472

20090210057

Acknowledgements

I sincerely appreciate the assistance of the faculty and staff at the Army-Baylor program, the staff at Moncrief Army Community Hospital, and indubitably my loving wife during this past year. Perhaps Dickens said it best in the opening line from A Tale of Two Cities, "It was the best of times, it was the worst of times..." For the first time in my military career I required the Army allow me to place my family first and the Army through individuals at HRC, Army-Baylor, and Moncrief among other institutions allowed me to do just that. My wife and I will forever be grateful for our ability to live in Columbia during this past year.

In terms of this project, the kind understanding and gentle nudges provided by LTC Jim Laterza and Dr. A. David Mangelsdorff in addition to the not so gentle urging of my wife Jean during the last month or so ensured my completion. I am thankful for all of their support. In addition, I thank LTC Laterza for always reminding me that health care is more than just a numbers game. There is always a patient at the end of every number and improving the quality of patient care is and should always be our ultimate goal as health care administrators. I thank Dr. A. David Mangelsdorff for expecting as much out of me as I expect out of myself. It is easier to strive higher when people expect great things from you. Most importantly, I thank my wife, Jean. Your love, support, and demonstration of courage in the face of adversity during the past year have been truly inspirational.

Abstract

In November 2006, Moncrief Army Community Hospital (MACH) at Fort Jackson, South Carolina instituted a customer service initiative intended to improve overall patient satisfaction by changing the behavior of front-desk clerks. The simple initiative involved front-desk clerks offering every outpatient customer an Interactive Customer Evaluation (ICE) comment card upon completion of their ambulatory visit and instituting drop boxes throughout the facility for patients to return their completed forms. Implementation priority was given to the Urgent Care Clinic (UCC) and the Family Health Clinic (FHC).

The purpose of this case study is to examine the actual consequences of implementing the ICE card initiative to determine the potential usefulness of this customer service initiative in other AMEDD facilities. This exploratory study attempts to answer the question, "How and why did the implementation of a customer service initiative on 1 November 2006 affect not only ICE card results but also mailed survey results in the FHC and UCC at MACH?"

The ICE card results indicate that ICE card overall satisfaction and staff attitude scores increased in each of the clinics when evaluated from one year to the next; however, these results have limited power and reliability based on the few number of responses prior to the initiative. The APLSS results indicate that while staff courtesy and helpfulness is a significant predictor of overall satisfaction and the ICE card initiative did improve staff courtesy and helpfulness, the initiative did not improve staff courtesy and helpfulness enough to make a significant contribution to overall satisfaction.

Based on these results, the author recommends utilizing the ICE card initiative to improve ICE card results; however, further research with a larger sample size is necessary to determine whether the ICE card initiative actually improves staff courtesy and helpfulness significantly enough to recommend implementation at other clinics or facilities.

Table of Contents

INTRODUCTION.....	1
Conditions Prompting the Study.....	1
Statement of the Problem.....	2
Literature Review.....	2
Patient satisfaction theory.....	2
Patient satisfaction model.....	4
Comment cards versus mailed surveys.....	12
Impact of low response rates.....	13
Cognitive dissonance theory.....	14
Purpose.....	14
METHODS AND PROCEDURES.....	16
RESULTS.....	23
H1 (ICE Card Overall Satisfaction) test results.....	23
H2 (ICE Card Average Attitude Rating) test results.....	25
APLSS descriptive statistics and reliability testing (FHC).....	28
APLSS trend analysis (FHC).....	30
Hierarchical multiple linear regression tests for overall satisfaction in the FHC.....	32
Hierarchical multiple linear regression tests for staff courtesy and helpfulness in the FHC..	33
APLSS descriptive statistics and reliability testing (UCC).....	34
APLSS trend analysis (UCC).....	37
Hierarchical multiple linear regression tests for overall satisfaction in the UCC.....	39
Hierarchical multiple linear regression tests for staff courtesy and helpfulness in the UCC	40
DISCUSSION.....	41
CONCLUSION AND RECOMMENDATIONS.....	42
REFERENCES.....	43
APPENDICES	
A – Interactive Customer Evaluation (ICE) Card.....	A-1
B – Army Provider Level Satisfaction Survey (APLSS).....	B-1

List of Tables

Table 1. Comparison of studies identifying predictors of patient satisfaction.....	5
Table 2. Code sheet for APLSS data.....	20
Table 3. Descriptive statistics and correlations for Y1, Y2, and categorical variables (FHC).....	28
Table 4. Descriptive statistics and correlations for beliefs and situation scaled variables (FHC)..	30
Table 5. Hierarchical multiple linear regression tests for overall satisfaction (H3) in the FHC....	32
Table 6. Hierarchical multiple linear regression tests for staff courtesy and helpfulness (FHC)...	34
Table 7. Descriptive statistics and correlations for Y1, Y2, and categorical variables (UCC).....	35
Table 8. Descriptive statistics and correlations for beliefs and situation scaled variables (UCC)..	37
Table 9. Hierarchical multiple linear regression tests for overall satisfaction (H3) in the UCC.....	38
Table 10. Hierarchical multiple linear regression tests for staff courtesy and helpfulness (UCC)..	40

List of Figures

Figure 1. Research Design for H1 and H2.....	17
Figure 2. APLSS Patient Satisfaction Model.....	18
Figure 3. APLSS Staff Courtesy and Helpfulness Model.....	19
Figure 4. Research Design for H3 and H4.....	22
Figure 5. Comparison of ICE Card Overall Satisfaction Scores in the FHC.....	23
Figure 6. Comparison of ICE Card Overall Satisfaction Scores in the UCC.....	23
Figure 7. Graph of Overall Satisfaction Score versus ICE Card Initiative (FHC).....	24
Figure 8. Graph of Overall Satisfaction Score versus ICE Card Initiative (UCC).....	25
Figure 9. Comparison of ICE Card Average Attitude Scores in the FHC.....	25
Figure 10. Comparison of ICE Card Average Attitude Scores in the UCC.....	26
Figure 11. Graph of Average Attitude Rating versus ICE Card Initiative (FHC).....	27
Figure 12. Graph of Average Attitude Rating versus ICE Card Initiative (UCC).....	27
Figure 13. Comparison of APLSS Overall Satisfaction by Month (FHC).....	31
Figure 14. Comparison of APLSS Staff Courtesy and Helpfulness by Month (FHC).....	31
Figure 15. Comparison of APLSS Overall Satisfaction by Month (UCC).....	38
Figure 16. Comparison of APLSS Staff Courtesy and Helpfulness by Month (UCC).....	38

Introduction

The Army Medical Department (AMEDD), the Department of Defense (DoD), and the Military Health System (MHS) each maintain data to measure satisfaction with services provided at a military treatment facility (MTF). The DoD utilizes an interactive customer evaluation (ICE) system to enable all DoD organizations to collect feedback about the services they provide so that those services may be improved upon to meet customer expectations (Loy, 2007). The ICE system is not a military health system specific device and it is intended to be a continuous feedback system for outpatients based on comment cards rather than actual surveys. To the contrary, the AMEDD and MHS conduct actual surveys to collect more extensive and detailed feedback about services provided at an MTF. The AMEDD utilizes the Army Provider Level Satisfaction Survey (APLSS) and the MHS utilizes the Customer Satisfaction Survey (CSS).

Conditions that prompted the study

The satisfaction rating for Moncrief Army Community Hospital (MACH) during fiscal year (FY) 2006 as measured by ICE card responses was 65 percent. The ICE card (see Appendix A) measures overall satisfaction by the number of customers stating “yes” to the question, “Were you satisfied with your experience?” The accuracy of the ICE system was questioned by the leadership at MACH because the ICE system satisfaction scores were very different from the overall satisfaction as measured by the APLSS. For instance, the overall satisfaction as measured by the APLSS during FY 2006 was 89.3 percent. The overall satisfaction in APLSS is measured as the percent of patients responding either “somewhat satisfied” or “completely satisfied” on question 21 of the survey (see Appendix B), “Everything considered, how satisfied were you with Moncrief Army Community Hospital during this visit?” The other issue noted by the command was the fact that only 862 responses to the ICE card were received during FY06 compared to over 7000 APLSS responses during the same period.

In November 2006, Moncrief Army Community Hospital (MACH) instituted a customer service initiative intended to improve overall patient satisfaction as measured by ICE card scores or APLSS results by changing the behavior of front-desk clerks. The simple initiative involved front-desk clerks offering every outpatient customer an ICE card upon completion of their ambulatory visit and instituting drop boxes throughout the facility for patients to return their completed forms. In addition to the actual ICE card, patients also maintained the option of completing a comment card via the ICE DoD website, <http://ice.disa.mil>. While the initiative was intended for all areas of the hospital, the priority was given to those areas with the highest number of outpatient visits, namely the Urgent Care Clinic and the Family Health Clinic.

Statement of the Problem or Question

This study attempts to answer the question, "How and why does implementation of this customer service initiative in the Urgent Care Center and the Family Health Center at MACH affect not only ICE card results but also mailed survey results?" As measured by ICE card results: Q1) Do overall satisfaction scores increase in these two clinics; Q2) Do employee/staff attitude scores increase; Q3) Are these results valid and reliable? As measured in APLSS results, Q1) Do overall satisfaction scores (i.e., question 21 of APLSS) increase; Q2) Do staff courtesy and helpfulness scores (i.e., question 13 of APLSS) increase; Q3) Are these results valid and reliable?

Literature Review

Patient satisfaction theory

Understanding the beliefs that lead to the attitudes patients have towards satisfaction is essential for healthcare administrators to make informed delivery of care decisions. Drawing on a variety of psychological theories, Linder-Pelz (1982a; 1982b) defined patient satisfaction as a patient's attitude toward their health care and proposed the expectancy-value theory of patient

satisfaction. The foundations for the Linder-Pelz definition are noted in the theory of reasoned action (Fishbein, 1967; Fishbein & Ajzen, 1975), equity theory (Lawler, 1971; Vroom; 1964), and the theory of social comparison (Festinger, 1954).

Essentially for Fishbein and Ajzen (1975) the term attitude was conceptualized as the amount of affect for or against some object whereas beliefs represented the information a person has about an object. Under expectancy-value theory, expectations were defined as the beliefs that an action will have consequences which, in turn, will have positive or negative valence (affect). From this relationship, Fishbein and Ajzen derived their claim that a person's attitude toward an object is related to his beliefs that the object possesses certain attributes and his evaluation of those attributes. Drawing on the work of Vroom (1964) in job satisfaction, Linder-Pelz argued that expectancy (i.e., the evaluation of object attributes) was determined by the relationship between the importance of an outcome and the perceived chances of that outcome being achieved. Based upon the empirical data she collected and analyzed, there was no support for the Fishbein and Ajzen model that attitudes are determined by the interaction of beliefs and expectations; however, she did report that both expectations and values were independent predictors of satisfaction (1982a).

The empirical results of Linder-Pelz work were congruent with the discrepancy, fulfillment, and equity models of pay satisfaction proposed by Lawler (1971). Under discrepancy theory, satisfaction is determined by the relationship between what a person desires and what occurs. Fulfillment theory, on the other hand, defines satisfaction as the difference between the rewards desired and those obtained. Equity theory posits that satisfaction results from evaluation of one's own position against that of others. A critical issue arising from this exposition was in relation to explaining discrepancies between social groups. For this, Linder-Pelz argued that dissatisfaction would arise where there was perceived discrepancy with the relevant social group.

In terms of individual intrapersonal comparisons, Linder-Pelz drew on the theory of social comparison (Festinger, 1954), whereby satisfaction is obtained through comparison with others mediated by the cultural setting.

Drawing all of these theories together, Linder-Pelz (1982b) proposed that patient satisfaction was related to the sum of the products of beliefs and valuations regarding various aspects of care; that this was subject to the extent to which perceived occurrences concurred with prior expectations; and that the satisfaction was subject to the valuing of the object (i.e., satisfaction would only occur where an object was valued). Regarding actual satisfaction, Linder-Pelz postulated that there were two conditions under which high satisfaction would be reported: a) where positive expectations and positive experiences coincided, and b) where experiences were perceived to be as good as or better than those of others. Dissatisfaction would occur where there were positive expectations and negative experiences.

From this theory, Linder-Pelz (1982b) argued that the determinants of patient satisfaction were: the beliefs about an object (i.e., expectations); a person's attitude toward an object (i.e., value); the belief held by an individual that he/she has proper and accepted grounds for claiming a particular outcome (i.e., entitlement); the perception of what actually occurred during an encounter with the health care system at whatever level (i.e., occurrences); and the comparison with others or with other encounters (i.e., interpersonal comparisons).

Patient satisfaction model

Since publication, the expectancy-value theory of patient satisfaction has been widely cited and used in the construction or review of patient satisfaction measures and models (Fan et al., 2004; Jackson, Chamberlin, & Kroenke, 2001; Tucker, 1998; Tucker & Kelley, 2000; Tucker & Adams, 2001). Based upon the logic that characteristics of the individual are the primary determinant of values and entitlement; the beliefs about the care itself are determined by

expectations; and situational characteristics measure the perception of occurrences and interpersonal comparisons, previous studies attempting to quantify predictors of patient satisfaction have focused on a variety of variables utilized to quantify these constructs. Table 1 below provides an analysis of previous studies testing the significance of predictor variables in determining patient satisfaction.

Table 1. *Comparison of studies identifying predictors of patient satisfaction*

Construct	Variable	Sources demonstrating significance ^a	
		Civilian	Military
Individual	Age	3, 4, 6, 7, 11	2, 8, 9, 12, 13, 14, 15
	Gender	3, 4, 7	2, 9, 13, 14, 15
	Health Status	4, 5, 7, 11	2, 8, 9, 12, 13, 14, 15
	Socioeconomic status/Beneficiary category	3, 4, 5, 16	2, 9, 12, 13, 14, 15
Beliefs about the care itself	Time spent with provider/thoroughness	1, 7, 16	2, 8, 9, 13, 15
	Provider listened/attention to what said	1, 5, 16	2, 9, 12, 13, 15
	Understood condition/ability to diagnose	1, 7, 16	13, 15
	Courtesy of provider	1, 16	12
	Provider explained tests/procedures	1, 7, 16	2, 8, 9, 13, 15
	Provider helped with problem (outcomes)	5, 7	2, 8, 9, 13
	Overall satisfaction with provider	1, 7	2, 8, 9, 10
	Wait time, appointment to visit (access)	6, 16	2, 9, 10, 13, 14, 15
	Wait time, in office	1, 6, 16	2, 8, 9, 13, 14, 15
Situation	Reason for/length of visit	11, 16	2, 9, 14
	Staff courtesy and helpfulness (attitude)	1, 16	2, 8, 9
	Continuity of care	4, 5, 11	2, 10

^a Significant zero-order correlations. Sources coded: 1-Andaleeb, 2001; 2-Barido, Gauthier, Mang, Mangelsdorff, & Finstuen, 2007; 3-Beach et al., 2005; 4-Fan et al., 2004; 5-Fincham & Wertheimer, 1986; 6-Green & Davis, 2005; 7-Jackson, Chamberlin, & Kroenke, 2001; 8-Mangelsdorff & Finstuen, 2003; 9-Mangelsdorff, Finstuen, Larsen, & Weinberg, 2005; 10-Morgan, Pasquarella, and Holman, 2004; 11-Nutting et al., 2003; 12-Tucker, 1998; 13-Tucker & Adams, 1998; 14-Tucker & Kelley, 2000; 15-Tucker & Munchus, 1998; 16-Yancy et al., 2001

Within the civilian sector, Fincham and Wertheimer (1986) published a seminal study of predictors of patient satisfaction in a health maintenance organization. Fincham and Wertheimer studied 11 predictors of satisfaction based upon 484 responses from surveys mailed to 700 ambulatory clinic patients. The results demonstrated that education (i.e., a proxy for socioeconomic status), self-assessed health status, communication appropriateness between

patient and physician (i.e., attention to what said), benefits of care (i.e., outcomes), and continuity of care were all significant predictors of patient satisfaction utilizing both simple multiple linear regression analysis and step-wise regression analysis. Overall, the final model in the study accounted for over 22 percent of the variance in patient satisfaction. The results were judged to be reliable based on a Cronbach's alpha of .97.

Since the publication of Fincham and Wertheimer's study, thousands of articles have been published attempting to describe the relationship between patient satisfaction and associated predictor variables. Seven of these articles were chosen to review here based on their pertinence to this study and psychometric qualities. They were deemed pertinent because they studied an outpatient population similar to those patients at Moncrief and they attempted to decipher the ability of individual, beliefs out the care itself, and/or situation variables to determine patient satisfaction. Furthermore, each of the studies demonstrated reliability.

Andaleeb (2001) studied 216 responses from outpatient surveys in a developing country and determined the factors of responsiveness, assurance, communication, and discipline accounted for 69 percent of the variation in satisfaction. The factors were composed of individual variables including caring, helpfulness, responsiveness, and courtesy of both the staff and the provider and overall satisfaction with the provider. Based upon a Cronbach's alpha of greater than .7, the results from this study appear reliable.

Beach et al. (2005) specifically studied whether outpatients treated with dignity reported higher satisfaction. Using data from the Commonwealth Fund 2001 Health Care Quality Survey of 6,722 adults living in the United States, Beach and his colleagues determined that age, sex, race/ethnicity, and income were all individual patient factors effecting overall patient satisfaction. The reliability of the study was verified using split-half analysis.

Fan et al. (2004) utilized over 21,000 primary care clinic outpatient responses to the Seattle Outpatient Satisfaction Questionnaire (SOSQ) to determine whether continuity of care was a significant contributor to patient satisfaction when tested simultaneously with individual factors. The results demonstrated that age, gender, annual household income, self-reported health status, and continuity of care were all significant predictors of patient satisfaction using multivariate linear regression models to predict SOSQ scores. The reliability of the study was tested and confirmed with a Cronbach's alpha of .92.

Green and Davis (2005) studied patient satisfaction with nurse practitioner care among responses from 817 outpatients utilizing the Di'Tomasso-Willard patient satisfaction questionnaire (DPWSQ). Using step-wise regression, Green and Davis determined that patient age and situational variables including wait time for appointment and wait time in clinic were predictive of satisfaction. The Cronbach's alpha coefficients for the DWSPQ subscales ranged from .93 to .99 demonstrating reliability within the results.

Jackson, Chamberlin, and Kroenke (2001) studied the predictors of patient satisfaction among a population of 500 adult outpatients in a general medicine walk-in clinic. The results of their study demonstrated that individual patient variables including age, gender, and health status in addition to beliefs about the care variables including thoroughness, ability to diagnose, explanation of diagnosis, explanation of expected outcomes, and actual outcomes were correlated with overall patient satisfaction. The internal consistency of the study was validated with a Cronbach's alpha of .91.

Nutting et al. (2003) examined 4,454 outpatient visits to 138 community-based family physicians attempting to determine the effects of continuity of care on patient satisfaction. Utilizing multiple regression, Nutting and his colleagues determined that indeed age, health status, length of visit, and continuity of care each contribute significantly and independently to

overall satisfaction when tested simultaneously. Inter-item reliability was verified via Cronbach's alpha for health status (i.e., $\alpha = .81$ for 5 items from the Medical Outcomes Study [MOS] form) and satisfaction ratings (i.e., $\alpha = .90$ for a 4-item subscale from the MOS form).

The final study from the civilian setting involved the work of Yancey et al. (2001) with significant predictors of overall satisfaction ratings in health care and comparisons of resident versus attending physicians in an ambulatory care clinic setting. The study utilized data obtained from the responses to 288 surveys of outpatients at four ambulatory care clinics. The results demonstrated 5 different beliefs about the care itself variables were primary predictors of patient satisfaction even when evaluated simultaneously with individual demographic and situational variables. Additionally, the study found that socioeconomic status in addition to the situation variables of access, wait time in clinic, length of visit, and staff attitude demonstrated unique predictive qualities. The reliability of this study was measured via Cronbach's alpha on three separate subscales each of which was higher than .90.

Specifically within the MHS, previous studies have established that overall patient satisfaction is the expression of a patient's values that reflect a relatively enduring organization of specific beliefs about the care itself that are focused on the given situation of presentation or visit at a healthcare facility, predisposing patients to a response (Mangelsdorff & Finstuen, 2003; Mangelsdorff, Finstuen, Larsen, & Weinberg, 2005). The model of patient satisfaction proposed by Mangelsdorff and Finstuen, which includes variables utilized to quantify the constructs of the individual, the beliefs about the care itself, and the situation, has demonstrated both validity and reliability.

Mangelsdorff and Finstuen's 2003 study of patient satisfaction within the military health system established the MHS model for patient satisfaction. Utilizing 130,660 responses to annual surveys and 675,666 responses to monthly surveys, Mangelsdorff and Finstuen

established significant zero-order correlations for patient satisfaction with age, health status, thoroughness of treatment, explanation of procedures, outcomes, and wait times in the clinic. The reliability of the results was tested for both of the surveys with a Cronbach's alpha of .91 for the annual survey and .88 for the monthly survey. Overall, Mangelsdorff and Finstuen's initial model of patient satisfaction accounted for over 71 percent of the shared variance on the annual survey and over 49 percent of the shared variance on the monthly survey.

In 2005, Mangelsdorff, Finstuen, Larsen, and Weinberg (2005) refined the model by adding beneficiary category, patient branch of service, five additional beliefs about the care itself variables, four additional waiting time variables, patient branch of service, and reason for visit. Based on a sample of 154,893 patient responses to monthly surveys, the results demonstrated significant zero-order correlations for all of the items in Table 1 with the exception of the variables understood condition/ability to diagnose and courtesy of provider because they were not questions on the survey. Additionally the model tested each of the predictor variables that compose the individual, beliefs about the care itself, and situation constructs to determine the unique predictive qualities of each of the variables. Hierarchical multiple-linear regression analysis revealed that several of the variables were not uniquely predictive including provider attention to what you say, staff friendliness and courtesy, and explanation of medication tests. The study demonstrated reliability with the beliefs about the care itself variables showing high internal consistency (i.e., Cronbach's alpha of .97).

Barido, Gauthier, Mang, Mangelsdorff, and Finstuen (in press) studied over 90,000 responses from military beneficiaries to the monthly MHS CSS and determined all of the factors tested in Table 1 demonstrated significant zero-order correlations. The variables understood condition/ability to diagnose and courtesy of provider were not tested due to the fact there is no comparable question in the monthly MHS CSS. While the study found simple zero-order

correlations for all of these factors, multiple hierarchical regression analysis revealed beneficiary category, provider explained medical tests, and amount of time with provider were not significant predictors when considered simultaneously with all other variables. The reliability of this study was validated with a Cronbach's alpha of .97.

Morgan, Pasquarella, and Holman (2003) also studied continuity of care and patient satisfaction in a military outpatient setting. Morgan and his colleagues analyzed the responses from 192 surveys of family practice clinic patients at Eisenhower Army Medical Center. The results demonstrated that continuity of care, satisfaction with provider, ease of appointment (i.e., a proxy for access), and beneficiary category were all independent predictors of overall satisfaction with the clinic accounting for 29.5 percent of the shared variance in patient satisfaction among all respondents. The reliability of the study was confirmed with a Cronbach's alpha of .97.

Finally, Tucker along with several colleagues published several studies of patient satisfaction in a military setting based on responses from the annual survey of DoD beneficiaries between 1998 and 2000. Tucker (1998) examined caring as a determinant of patient satisfaction by utilizing the results from 11,772 annual surveys. He found the individual variables age, health status, rank, and education (i.e., proxy for socioeconomic status) in addition to the beliefs about the care itself variables attention from provider, courtesy of provider, and concern for patient were significantly positively correlated with patient satisfaction. The overall model accounted for 41 percent of the variance in patient satisfaction.

Tucker and Munchus (1998) attempted to determine the predictors of quality care by examining 50,009 annual surveys. Among individual variables, Tucker and his colleague determined age, gender, health status, and beneficiary group were all significant predictors of patient satisfaction when tested independently; however, when tested simultaneously with other

quality factors such as access and care provided only beneficiary group and health status were significant predictors. The overall model includes many of the individual, beliefs about the care itself, and situation variables (see Table 1) and accounted for over 80 percent of the variance in patient satisfaction. The reliability of the study was tested was validated via a Cronbach's alpha of .96.

Tucker and Adams (1998) utilized a factor analysis methodology in constructing their model of patient satisfaction. The study utilized the results of 49,478 responses to the annual survey of DoD beneficiaries. The factors tested included provider performance, access, physiological, status, gender, mission, utilization, and marital status. The reliability of the factors was validated by testing internal consistency via Cronbach's alpha with results ranging from .74 to .98 for each of the factors. Specifically the study demonstrated that provider performance (i.e., beliefs about the care itself variables accounted for 74 percent of the shared variance in patient satisfaction. Furthermore, the remaining factors accounted for only an additional 1 percent of variance in patient satisfaction.

Tucker and Kelley (2000) also conducted a factor analysis to determine the influence of patient sociodemographic characteristics on patient satisfaction; however, they utilized 4,240 DoD annual survey responses strictly from Army beneficiaries. The results demonstrated zero-order correlations among all the variables in Table 1 with the exception of courtesy of provider, reason for visit, staff courtesy, and continuity of care which were not evaluated. Similar to the results of the Tucker and Kelley (1998) study, the access and communication factors accounted for 42.4 percent of the shared variance in patient satisfaction and the sociodemographic factors accounted for only an additional 5 percent of the shared variance. Each of the factors in the study appeared reliable with a Cronbach's alpha ranging from .70 to .96.

While the previous studies of patient satisfaction have focused on either the monthly or annual DoD patient survey, one focus of this study is to establish a model utilizing the APLSS. Based upon the previous literature regarding patient satisfaction, the model constructs and variables presented in Table 1 form the basis for the model. The revised model, based upon aforementioned constructs of individual, beliefs about the care itself, and situation, will include all of the variables in Table 1 with the exception of health status. Although reason for visit is a proxy for health status, unfortunately in this particular study, reason for visit is limited since the urgent care center sees primarily urgent cases and the family health center sees primarily routine cases.

Comment cards versus mailed surveys

Several studies have noted an inherent bias associated with comment cards versus mailed surveys (Burroughs et al., 2005; Gribble & Haupt, 2005; Nelson et al., 1991). In their study of 334 outpatient survey responses randomly distributed via either on-site method or mailed, Burroughs and his colleagues (2005) showed that on-site distribution methods may yield satisfaction results that are biased in a positive direction for younger patients and for all patients in which social desirability pressures are prominent. Therefore, organizations that rely on such information may have an inflated view of the patient's satisfaction with their care delivery experience. The study appears reliable with a Cronbach's alpha of .95 for the 21 total satisfaction items surveyed.

Furthermore, Gribble and Haupt (2005) compared the results of an appointment specific outpatient survey for patients randomized into on-site distribution and mailed survey groups and found several differences. First, the response rate (72.6 percent) was higher with handout surveys than with mailed surveys (56.5 percent). Second, the 246 handout surveys completed in the office yielded higher satisfaction scores than the 195 mailed surveys returned with the largest

effect size noted in personal manner of office staff. Finally, handout surveys were returned with more skipped questions, a lower variation in ratings, and fewer written comments than the mailed surveys. Based upon these results, Gribble and Haupt concluded that attempts to draw direct comparisons of data obtained from the 2 different methods needs to be approached with caution. The results appear reliable with a Cronbach's alpha greater than .9 for each of the survey methods.

Finally, Nelson and his colleagues (1991) evaluated the patient comment card in general and then evaluated the results of a handout distribution method versus a mailed method for patients in an ambulatory setting. The study demonstrated the 181 outpatient comment card responses yielded high test-retest ($r = .75$) and inter-item (Cronbach's alpha = .89) reliability along with high convergent and discriminant validity. Additionally, the results from the handout method versus the mailed method yielded results congruent with the other findings that on-site surveys yielded higher scores. Nelson and his colleagues concluded that patient comment cards, such as the ICE card, are useful for providing immediate feedback and provide the unique ability for gathering feedback in the form of written comments from patients.

Impact of low response rates

In a seminal article on low response rates, Barkley and Furse (1996) demonstrated that "there is about a 50-50 chance that decisions made on the basis of low-response-rate data will not match decisions that would be made using higher-response-rate data" (p. 431). The study of over 19,000 responses from inpatients discharged from 76 nonprofit hospitals in 1994 appears reliable with similar results across different hospitals. Furthermore, the study showed that those who respond early are indeed different from those who respond later, with respect not necessarily to demographic representativeness but to the actual variable of interest – patient satisfaction. This

finding will become crucial to the utility of the ICE card initiative regardless of the outcomes of the surveys.

Cognitive dissonance theory

Cognitive dissonance is a communication theory synthesized from the results of several studies by Festinger (1957) concerning the social influences of communication. The title reveals the concept: cognitive is thinking or the mind; and dissonance is inconsistency or conflict. Cognitive dissonance is the psychological conflict from holding two or more incompatible beliefs simultaneously. If presented with a decision or information that creates dissonance, individuals use dissonance reduction strategies to regain equilibrium, especially if the dissonance affects their self-esteem (Festinger & Carlsmith, 1959).

The theory further suggests: a) dissonance is psychologically uncomfortable enough to motivate people to achieve consonance, and b) in a state of dissonance, people will avoid information and situations that might increase the dissonance. According to the theory, people are able to be manipulated into certain behavior and by doing these behaviors people will alter their attitudes themselves (Festinger & Carlsmith, 1959; Fishbein & Ajzen, 1975).

Purpose (Variables/Working Hypothesis)

The purpose of this case study is to examine the actual consequences of implementing the ICE card initiative to determine the potential usefulness of this customer service initiative in other AMEDD facilities. This exploratory study attempts to answer the question, "How and why did the implementation of a customer service initiative on 1 November 2006 affect not only ICE card results but also mailed survey results in the Family Health Clinic and Urgent Care Clinic at MACH?" The following two propositions are posited: the ICE card initiative resulted in improved ICE card outcomes; and the ICE card initiative resulted in an improvement in outcomes from mailed surveys. The first proposition will be measured via two hypotheses: H1)

the ICE card initiative resulted in improved ICE card overall satisfaction scores; H2) the ICE card initiative resulted in improved ICE card friendliness and attitude scores. The second proposition is measured via the two hypotheses: H3) the ICE card initiative resulted in improved satisfaction scores on mailed surveys; and H4) the ICE card initiative resulted in improved friendliness and attitude scores on mailed surveys.

Due to the fact that Fort Jackson is the largest training base in the United States and MACH's primary mission is supporting soldiers in training, there is a cyclical nature to the number of visits at Moncrief. Moncrief experiences a significant increase in the number of patients in the summer versus the winter because of the increase in the number of trainees. This phenomenon is referred to as "summer surge". Because of the potential effects summer surge may have on overall satisfaction, the comparisons will be made year over year for the months of November to April. In other words, the results from November 2005 to April 2006 will be compared with the results from November 2006 to April 2007.

From the first hypothesis, ICE card overall satisfaction scores will be determined based upon the responses to the dichotomous question, "Were you satisfied with your experience?" The output variable for the second hypothesis will be responses to the rating of the "Employee/Staff Attitude" question on the ICE card (see Appendix A). The output variable for H3 will be question 21 of the APLSS, "Everything considered, how satisfied were you with Moncrief Army Community Hospital during this visit?" The output for H4 will be the rating of statement 13 of the APLSS, "Courtesy and helpfulness of the staff during this visit."

The objective of H1 is to determine if the ICE card initiative had the desired first order effect desired by the command to improve overall satisfaction in ICE card scores. The objective of H2 is to determine if the ICE card initiative resulted in a significant improvement in staff attitude and courtesy as predicted by cognitive dissonance theory. The objective of H3 is to

determine whether a significant improvement in patient satisfaction can be measured using a more reliable and valid survey instrument. Essentially, by controlling for other predictor variables of patient satisfaction, H3 will determine whether the ICE card initiative actually improved patient satisfaction or whether the ICE card results were more attributable to changes in response rates. The objective of H4 is to again determine whether an improvement in staff courtesy and attitude can be identified as predicted by cognitive dissonance theory.

Methods and Procedures

The study setting was the MACH Family Health Clinic and the Urgent Care Center. Due to the cyclical nature of the workload at MACH, data from completed ICE card and APLSS surveys were utilized. The period 1 November 2005 to 30 April 2006 (Pre) was compared with data from 1 November 2006 to 30 April 2007 (Post). This method of comparison was presumed to be a more accurate comparison of trend data than just comparing 6 months prior and 6 months post implementation of the initiative.

A graphical depiction of the research design for H1 and H2 is provided at *Figure 1*. Based upon the limited availability of data from the ICE card in the <http://ice.disa.mil> database, the ICE card data will contain only five variables: clinic; ICE card initiative; month; overall satisfaction scores; and attitude scores. Clinic is operationally defined as the clinic the patient visited coded one for FHC, two for UCC. ICE card initiative is operationally defined as the Pre or Post periods described above and will be coded dichotomously (0 = Pre, 1 = Post). Month is operationally defined as the actual month of the patient visit coded MMM YY for the actual month. Overall satisfaction score is operationally defined as the percent of patients during a given month answering "Yes" to the question, "Were you satisfied with your experience?" Attitude scores are operationally defined as the percent of patients responding "excellent" to the Employee/Staff Attitude question during a given month.

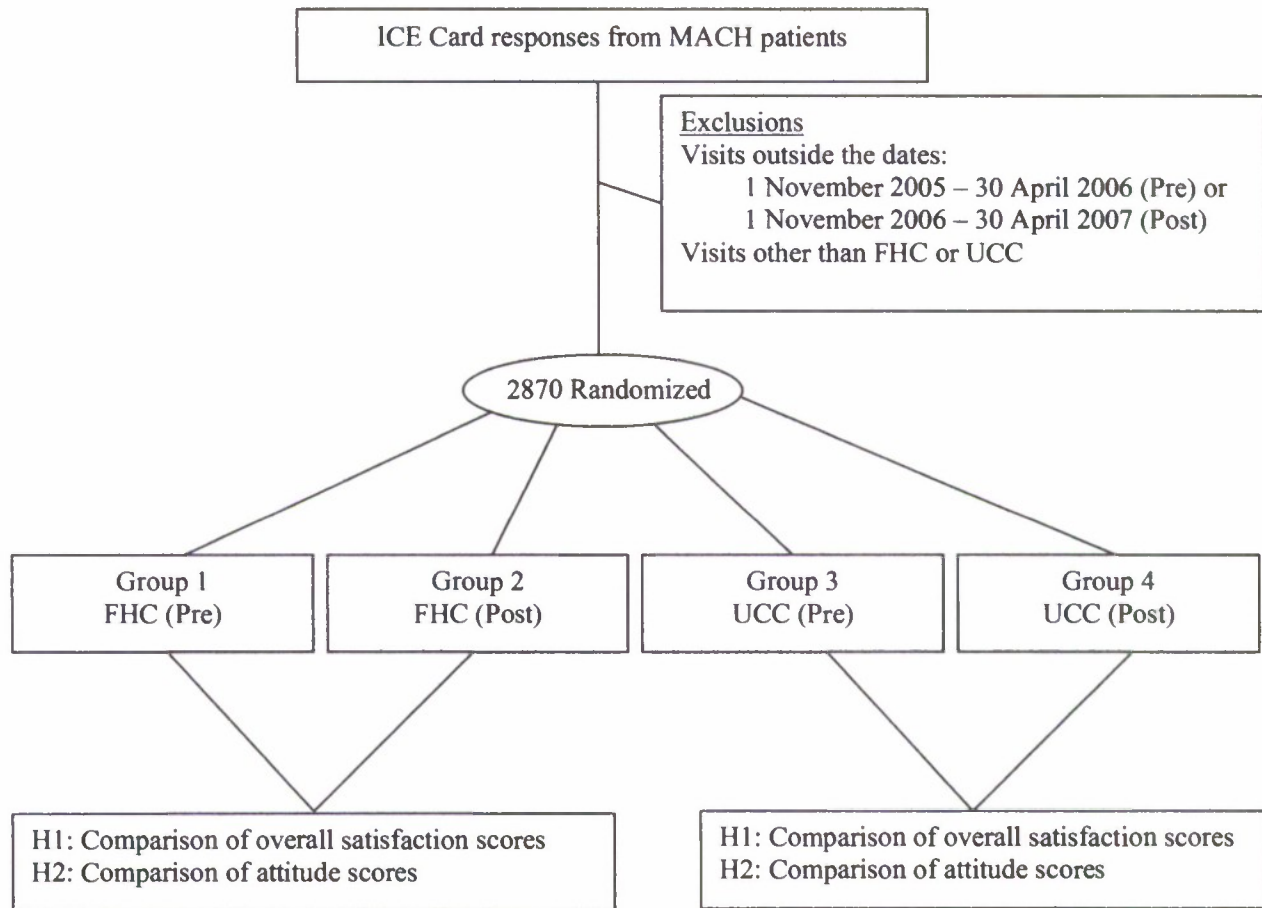


Figure 1. Research Design for H1 and H2.

Trend analysis will be conducted by visual inspection of a trend graph containing Pre and Post results from the FHC and from the UCC. Furthermore, a two sample t-test will be conducted between Groups 1 & 2 and Groups 3 & 4 to determine if there is a significant difference between the Pre and Post groups either in the FHC or the UCC. While this provides only a cursory look at the effects of the ICE card initiative, unfortunately the reliability of the instrument is unable to be tested further with the data available. Furthermore, the inherent bias associated with the results of the ICE cards (Burroughs et al., 2005; Gribble & Haupt, 2005; Nelson et al., 1991) and sampling inequities within the Pre and Post data create issues in terms of

face validity. Hence, examining the results of the initiative from the results of the APLSS survey provides more meaningful results.

The output variable for H3 will be question 21 of the APLSS, “Everything considered, how satisfied were you with Moncrief Army Community Hospital during this visit?” Based on the literature review other factors affecting overall satisfaction that are included on the APLSS survey and patient data collection system are included in the APLSS patient satisfaction model proposed in *Figure 2*.

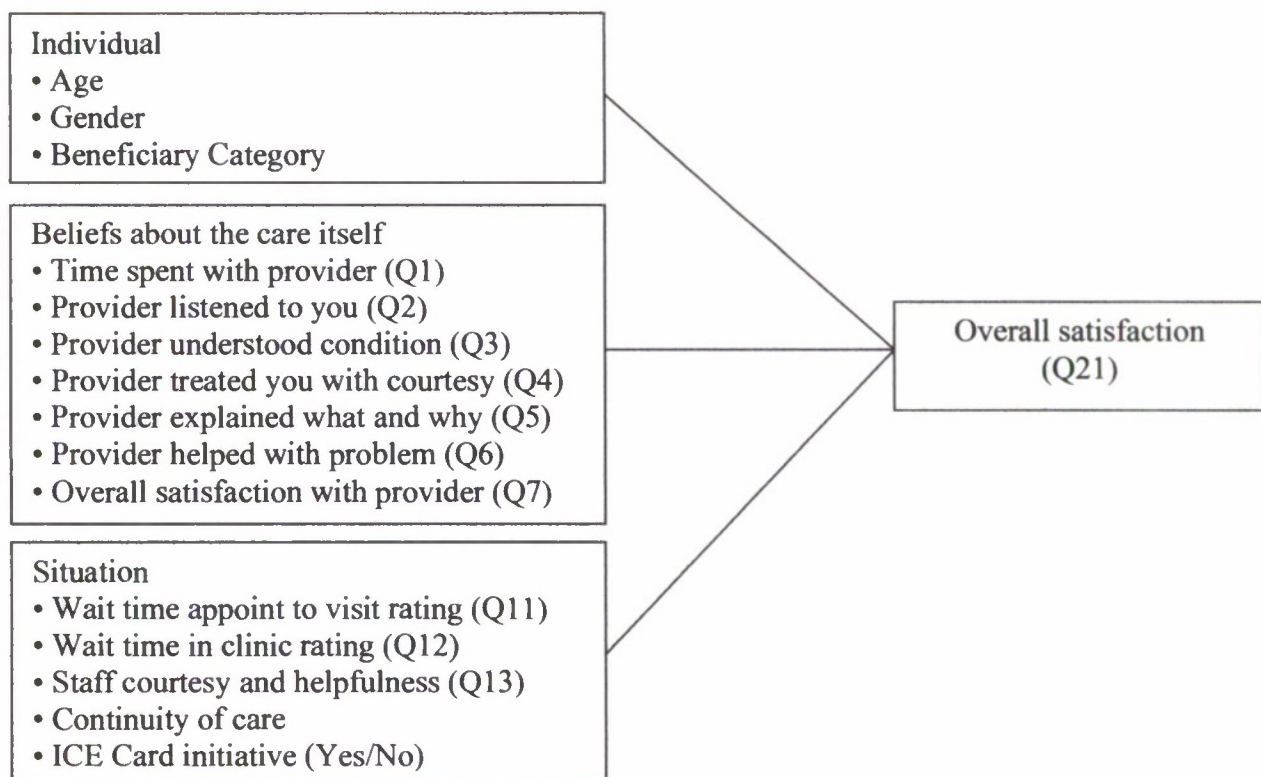


Figure 2. APLSS Patient Satisfaction Model.

Adapted from the previous work of Mangelsdorff and Finstuen among others, the model utilizes the same constructs as previous models; however, the model does not include a health status or reason for visit variable because the APLSS survey does not contain a health status

question and the reason for visit is almost uniformly “routine” in the Family Health Clinic and “urgent” in the Urgent Care Clinic. The proposed model will be utilized to determine the amount of unique variance accounted for by the ICE card initiative by controlling for the other factors affecting patient satisfaction.

The output for H4 will be the rating of statement 13 of the APLSS, “Courtesy and helpfulness of the staff during this visit.” Factors expected to affect a patient’s rating of staff courtesy and helpfulness from the APLSS survey and patient data collection system are included in the APLSS staff courtesy and helpfulness model proposed in *Figure 3*.

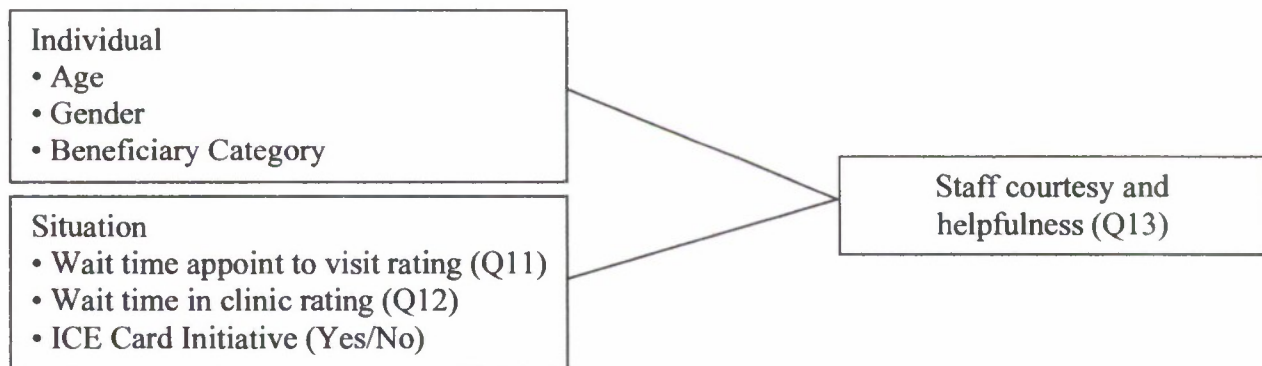


Figure 3. APLSS Staff Courtesy and Helpfulness Model.

Essentially, all of the individual patient variables and situation variables with the exception of continuity of care are expected to affect a patient’s view of staff courtesy and helpfulness. The proposed model will be utilized to determine the amount of unique variance accounted for by the ICE card initiative by controlling for other factors affecting a patient’s view of staff courtesy and helpfulness.

A code sheet for the APLSS data is enclosed at Table 2.

Table 2. Code sheet for APLSS data

Variable Name	Description	Code=Value
Age_Group	Patient Age Group	1 = 0-17 2 = 18-24 3 = 25-34 4 = 35-44 5 = 45-64 6 = >= 65
M_GENDER	Gender of patient	1 = M 0 = F
M_BENEGRP	Beneficiary Group of Patient	1 = AD/AD Res 2 = DEP AD/AD Res 3 = RETIRED 4 = DEP RET OR SURVIVOR 5 = RESERVIST
Q1	Provider spent the time with you required	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q2	Provider listened to you	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q3	Provider understood condition	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q4	Provider treated you with courtesy	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q5	Provider explained what and why	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q6	Provider helped with problem	1 = Completely Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat Agree 5 = Completely Agree
Q7	Overall satisfaction with provider	1 = Completely Dissatisfied 2 = Somewhat Dissatisfied 3 = Neither Satisfied nor Dissatisfied 4 = Somewhat Satisfied 5 = Completely Satisfied
Q11	Rating of wait time appointment to visit	1 = Poor 2 = Fair 3 = Good 4 = Very Good 5 = Excellent
Q12	Rating of wait time in clinic	1 = Poor 2 = Fair 3 = Good 4 = Very Good 5 = Excellent
Q13	Courtesy and helpfulness of the staff	1 = Poor 2 = Fair 3 = Good 4 = Very Good 5 = Excellent
PCMTREAT	Treated by PCM (Continuity of care)	1 = Yes 0 = No
M_ICECARD	Whether visit was pre or post ICE initiative	1 = Post (11/1/2006-4/30/2007) 0 = Pre (11/1/2005-4/30/2006)
M_Clinic	Clinic patient visited	1 = FHC 2 = UCC
Q21	Overall satisfaction with visit	1 = Completely Dissatisfied 2 = Somewhat Dissatisfied 3 = Neither Satisfied nor Dissatisfied 4 = Somewhat Satisfied 5 = Completely Satisfied

Age data was recoded into six distinct groups. The gender, continuity of care, and ICE card variables were all coded dichotomously. Beneficiaries were coded into five distinct groups based on the population served by MACH. Questions one thru six describing the patients beliefs about the care itself are each coded on a 5-point Likert-type scale based on whether the patient agrees with the statement regarding the provider (i.e., coded one if the patient completely disagrees with the statement to five if the patient completely agrees with the statement). Question seven asks the patients overall satisfaction with the visit to the provider. The response is coded on a 5-point Likert-type scale with one being completely dissatisfied and five being completely satisfied.

The situational variables for the ratings of wait time (i.e., Q11 and Q12) and for courtesy and helpfulness of the staff (i.e., Q13) are each coded on a 5-point bipolar scale with one being poor and five being excellent. The clinic the patient visited is delineated by the variable M_Clinic and coded one for the FHC and two for the UCC. Finally, the overall satisfaction with the clinic (i.e., Q21) is coded on a 5-point Likert-type scale with one being completely dissatisfied and five being completely satisfied.

A graphical depiction of the research design for testing H3 and H4 is enclosed at *Figure 4*. First, the descriptive statistics including mean, standard deviation, and correlations including inter-item correlations (i.e., Cronbach's alpha) will be computed for the Pre and Post groups. This will allow us to compare the populations to ensure they are similar, establish criterion-related validity, and establish the reliability of the survey instrument. Second, multiple hierarchical linear regression will allow us to test the construct validity within the model and also give us an unambiguous estimate of the unique amount of variance in either patient satisfaction or attitude scores accounted for by the ICE card initiative.

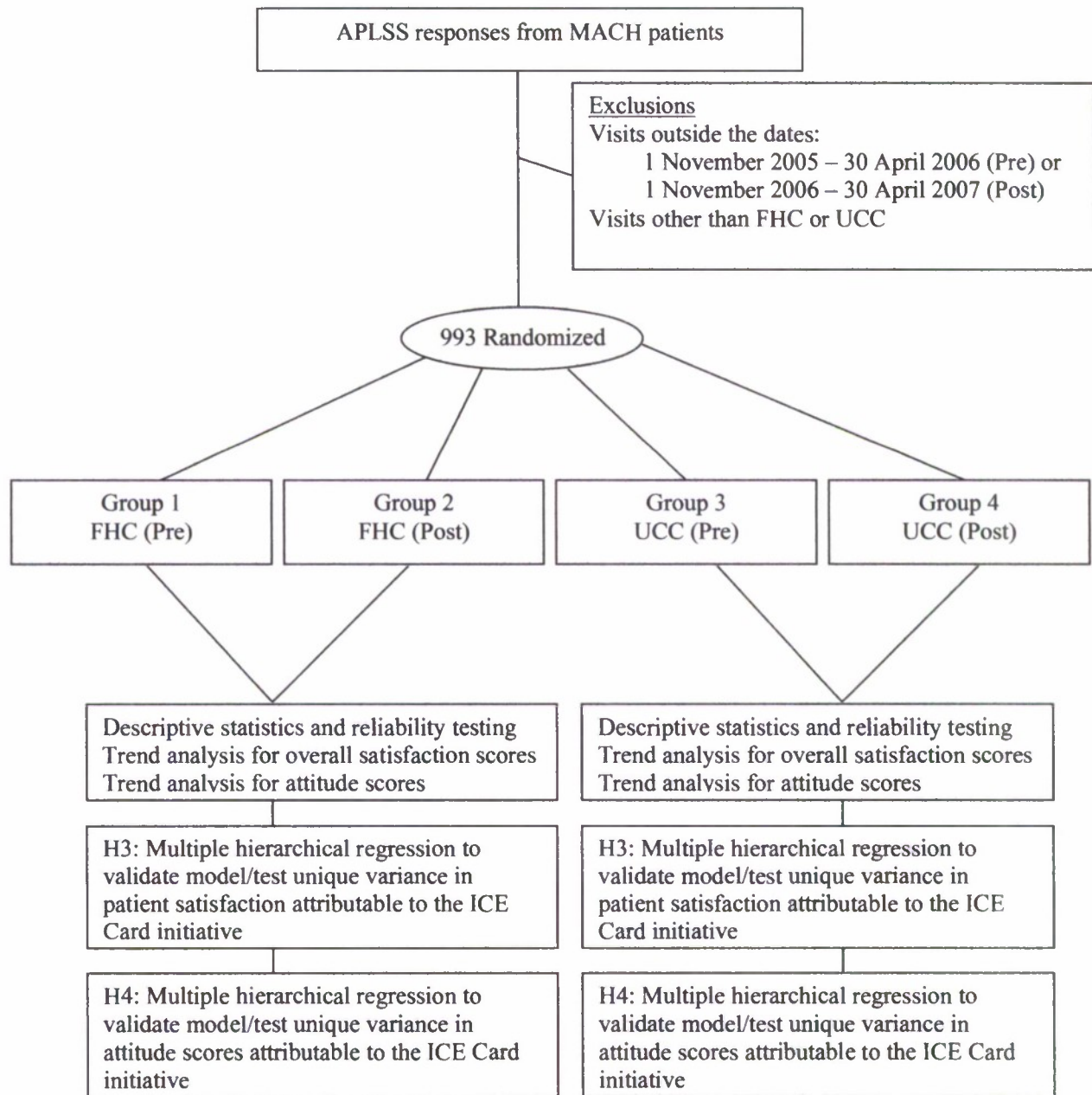


Figure 4. Research Design for H3 and H4.

Ethical considerations of data collection

Individual patient identifiers will not be a part of any of the data utilized. Additionally, names of individual providers and other staff will not be included in the report.

Results

H1 (ICE Card Overall Satisfaction) test results

A comparison of overall satisfaction (i.e., the percent of patients answering “Yes” to the question “Were you satisfied with your experience?”) for both the UCC and the FHC as measured by ICE card scores from 1 November 2005 to 30 April 2006 versus 1 November 2006 to 30 April 2007 are shown in *Figure 5* and *Figure 6*.

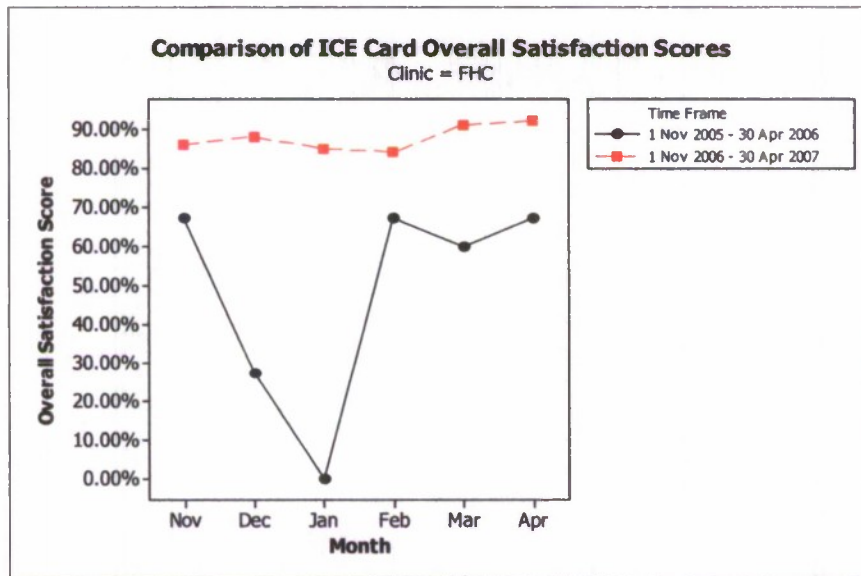


Figure 5. Comparison of ICE Card Overall Satisfaction Scores in the FHC.

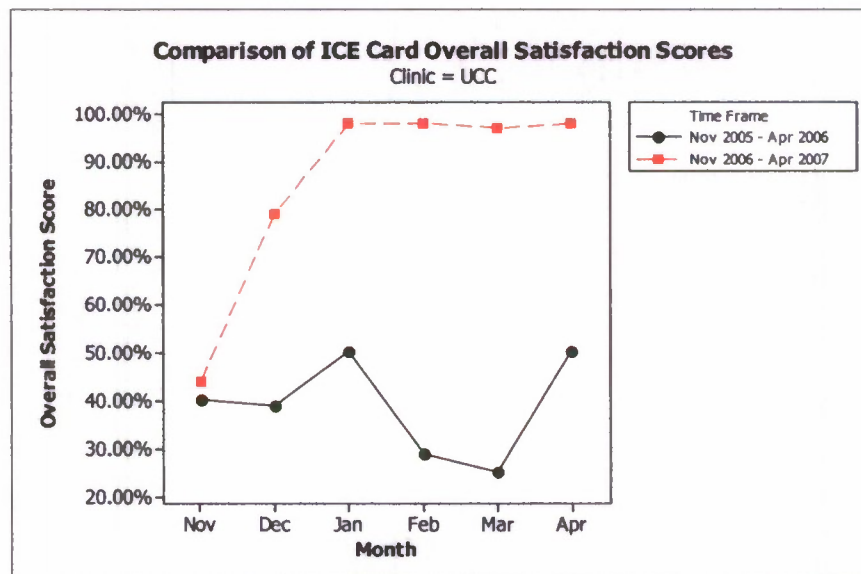


Figure 6. Comparison of ICE Card Overall Satisfaction Scores in the UCC.

The results clearly reveal that the overall satisfaction scores increased in each of the clinics when evaluated from one year to the next. Additionally, the results appear to be more stable from one month to the next. Specifically, the range of overall satisfaction score by month in the FHC was 0 to 67 percent before the ICE card initiative versus 84 to 92 percent after the initiative. While UCC had similar results, there appeared to be a delay in the actual improvement demonstrated by the initiative. The range of overall satisfaction scores in the UCC was 25 to 50 percent prior to the initiative versus 44 to 98 percent after the initiative. Considering the Pre group mean of 48.0 percent and the Post group mean of 87.67 percent, a simple two sample t-test revealed a significant difference between the Pre and Post groups in the FHC, $t(5) = 3.42$, $p < .05$. A similar difference between groups (i.e., Pre mean = 38.8 percent; Post mean = 85.7 percent) was found in the UCC, $t(5) = 4.76$, $p < .01$. These differences are clearly demonstrated in *Figure 7* and *Figure 8*.

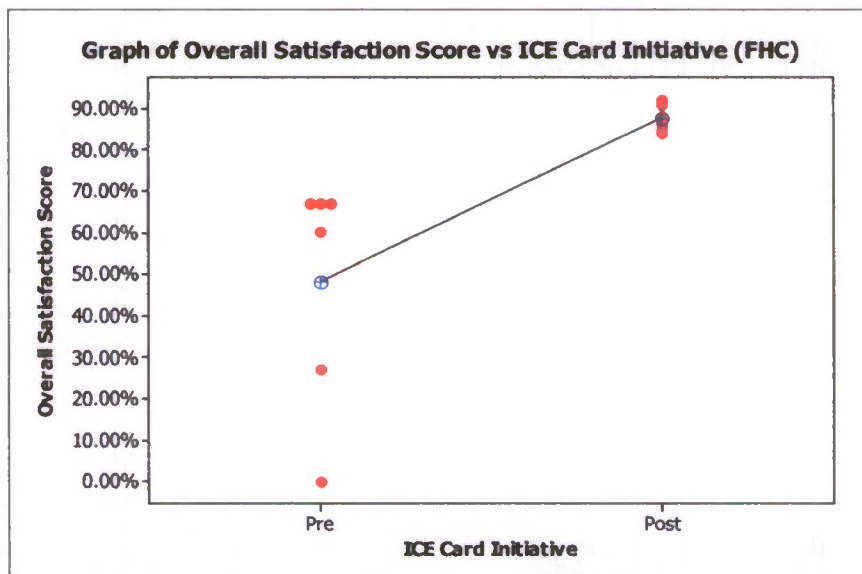


Figure 7. Graph of Overall Satisfaction Score versus ICE Card Initiative (FHC).

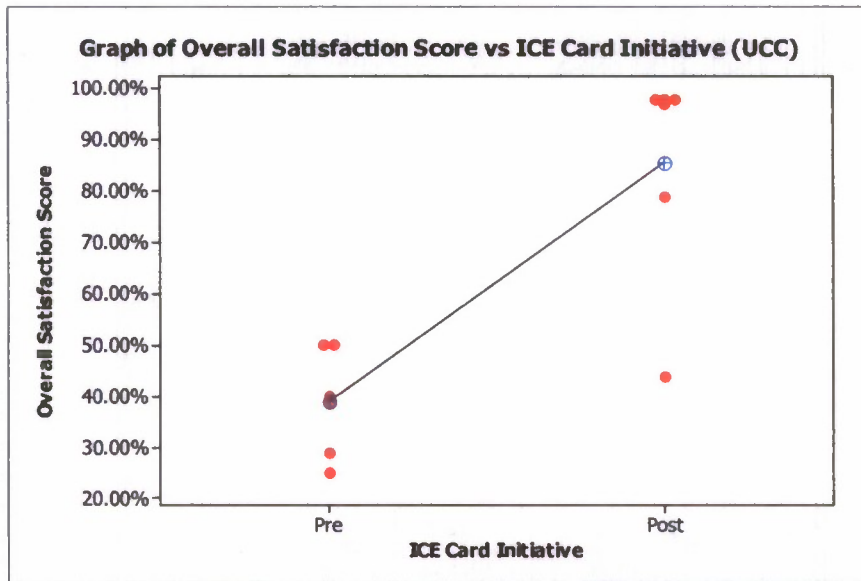


Figure 8. Graph of Overall Satisfaction Score versus ICE Card Initiative (UCC).

H2 (ICE Card Average Attitude Rating) test results

The tests for H2 yielded results similar to the results from H1; however, the results for the trend comparison of average attitude rating are less definitive especially in the UCC as demonstrated in *Figure 9* and *Figure 10*.

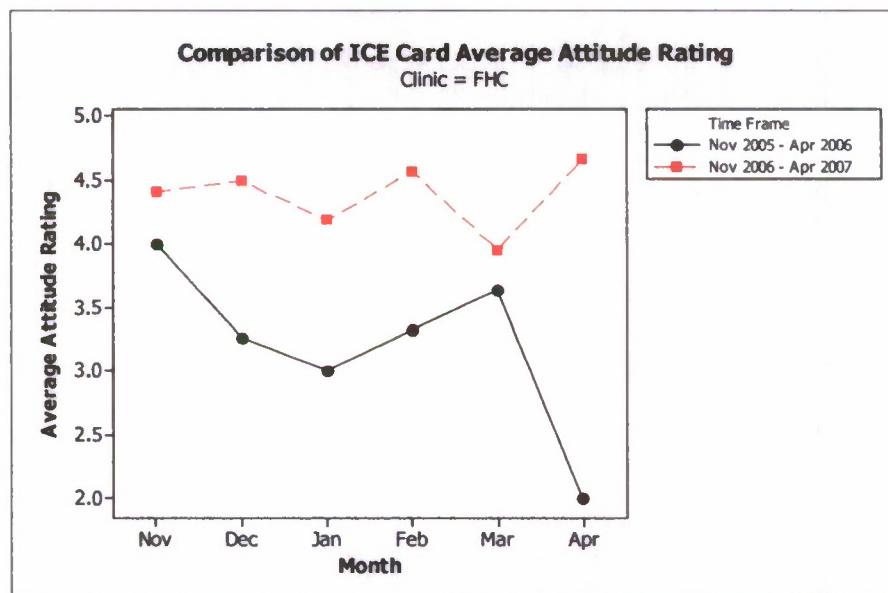


Figure 9. Comparison of ICE Card Average Attitude Scores in the FHC.

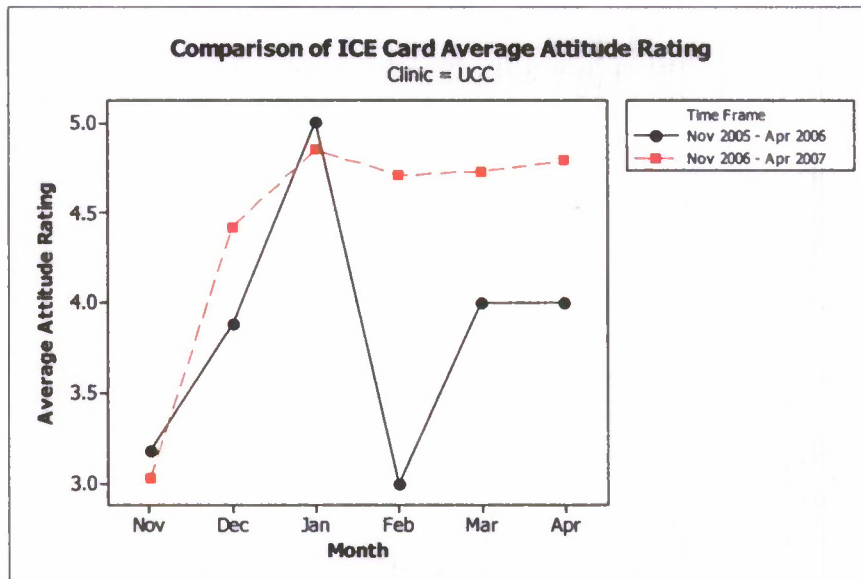


Figure 10. Comparison of ICE Card Average Attitude Scores in the UCC.

The results clearly reveal that overall the average attitude scores increased in both of the clinics when evaluated from one year to the next; however, exceptions to these results occurred in the UCC. The average attitude scores for both November 2005 (3.18) and January 2006 (5.00) in the UCC were higher than the scores in November 2006 (3.03) and January 2007 (4.85). While the pre initiative values were higher in these two cases, it should be noted that the number of responses increased significantly from one year to the next (i.e., November 2005, $n=10$; January 2006, $n=2$; November 2006, $n=39$; January 2007, $n=845$). In other words, an average of 5.00 out of 5.00 for the 2 responses received in January 2006 is a much less reliable result than the average of 4.85 out of 5.00 for the 845 responses received in January 2007.

The range of average attitude score by month in the FHC was 2.00 to 4.00 before the ICE card initiative versus 3.96 to 4.67 after the initiative. The range of average attitude scores by month in the UCC was 3.18 to 5.00 prior to the initiative versus 3.03 to 4.85 after the initiative. Considering the Pre group mean of 3.21 and the Post group mean of 4.38, a simple two sample t -test revealed a significant difference between the Pre and Post groups in the FHC, $t(6) = 3.93$, p

$< .01$. The results in the UCC were contrary to expectations. While there was a practical difference between groups in the UCC (i.e., Pre mean = 3.84; Post mean = 4.42), the difference was not found to be significant, $t(9) = 1.42$, $p = .19$. *Figure 11* and *Figure 12* demonstrate the differences between the two groups in the FHC and UCC, respectively.

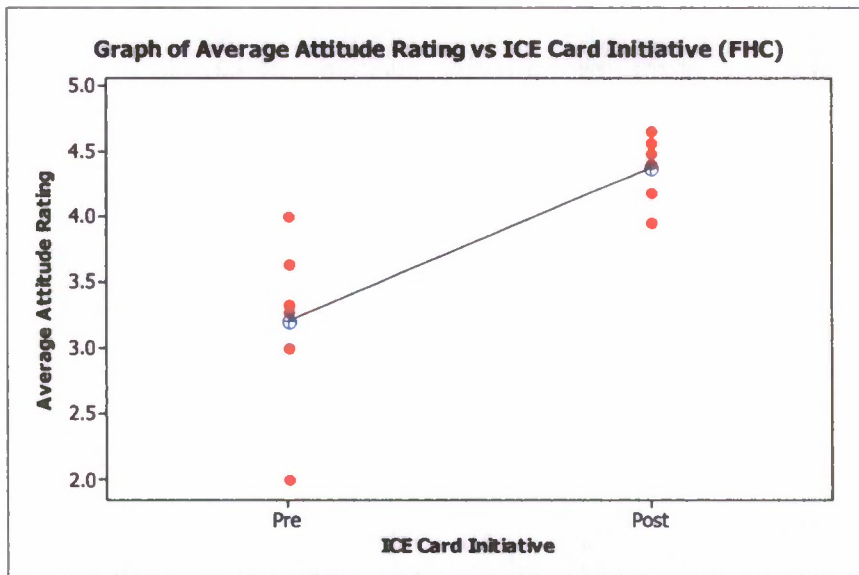


Figure 11. Graph of Average Attitude Rating versus ICE Card Initiative (FHC).

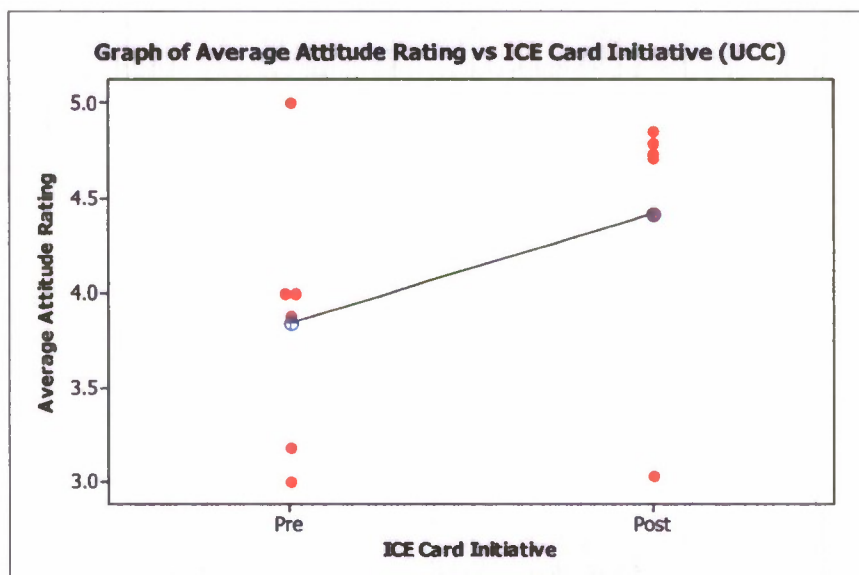


Figure 12. Graph of Average Attitude Rating versus ICE Card Initiative (UCC).

APLSS descriptive statistics and reliability testing (FHC)

The descriptive statistics and correlation for patient satisfaction (Q21); courtesy and helpfulness of the staff (Q13); and the categorical individual patient and situation variables with MACH FHC visits are shown in Table 3. With a mean of 4.51, patients were overall very satisfied with their visits to the MACH FHC. Additionally, patients rated the overall courtesy and helpfulness of the staff as very good (mean = 4.17). Similar to the results of previous studies, younger patients were less satisfied overall than older patients with a range of 4.20 for the 18-24 year old age group to 4.67 for the over 65 age group.

Table 3. *Descriptive statistics and correlations for Y1, Y2, and categorical variables (FHC)*

Variable	No.	%	Y1 (Pt Sat)			Y2 (Staff)		
			Mean	SD	r ₁	Mean	SD	r ₂
Y1 - Patient satisfaction w/FHC visit ^a	643	100.00	4.51	.888				
Y2 - Courtesy and helpfulness of the staff ^b	643	100.00	4.17	.959	.369 ^c	4.17	0.959	
Individual patient variables								
Age group (years)								
0-17	96	14.93	4.47	.820	-.017	3.96	1.056	-.092 ^c
18-24	35	5.44	4.20	1.079	-.083 ^c	4.00	1.057	-.042
25-34	80	12.44	4.26	1.016	-.103 ^c	4.19	0.982	.007
35-44	130	20.22	4.39	.984	-.069	4.09	0.981	-.045
45-64	256	39.81	4.66	.795	.145 ^c	4.26	0.892	.075
≥65	46	7.15	4.67	.628	.059	4.46	0.836	.083 ^c
Gender								
Male	266	41.37	4.55	.833	.045	4.14	0.979	-.027
Female	377	58.63	4.47	.925	-.045	4.19	0.946	.027
Beneficiary category								
Active Duty/Active Duty Reservist	114	17.73	4.50	.875	-.003	4.24	0.944	-.033
Active Duty Dependent	219	34.06	4.29	.998	-.173 ^c	4.05	1.013	-.093 ^c
Retired	138	21.46	4.71	.686	.121 ^c	4.25	0.905	.046
Retired Dependent or Survivor	160	24.88	4.65	.803	.094 ^c	4.21	0.948	.026
Reservist	12	1.87	4.17	1.193	-.053	4.25	0.754	-.012
Situation variables								
Treated by PCM (Continuity of care)								
Yes	389	60.50	4.55	.862	.064			
No	254	39.50	4.44	.925	-.064			
ICE Card Initiative								
Pre (Nov 2005 - Apr 2006)	380	59.10	4.55	.826	.053	4.13	0.965	-.051
Post (Nov 2006 - Apr 2007)	263	40.90	4.45	.971	-.053	4.23	0.950	.051

r₁ = Correlation with Y1 - Patient satisfaction with visit.

r₂ = Correlation with Y2 - Courtesy and helpfulness of the staff.

^a Scale for Y1: 5-point bipolar scale: 1, completely dissatisfied; 2, somewhat dissatisfied; 3, neither satisfied nor dissatisfied; 4, somewhat satisfied; 5, completely satisfied.

^b Scale for Y2: 5-point bipolar scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent.

^c Correlations are statistically significant, $p < 0.05$.

Gender did not present a significant zero-order correlation with overall satisfaction; however, males were slightly more satisfied than females with means of 4.55 and 4.47, respectively. To the contrary, several beneficiary categories were presented significant correlations with active duty dependents significantly less satisfied ($r = -.173$) and retirees and their dependents significantly more satisfied ($r = .121$ and $.094$, respectively). Neither the treatment by the PCM (continuity of care) nor the ICE card initiative presented a significant correlation. Furthermore, overall satisfaction was lower during the Post ICE card initiative period than the Pre period (Pre mean = 4.55, Post mean = 4.45).

In terms of staff courtesy and helpfulness, younger patients once again rated significantly lower than older patients. The 0-17 age group rated the staff the lowest (mean = 3.96) and the greater than 65 age group rated the staff the highest (mean = 4.46). It should be noted that for the 0-17 year old age group, the parents actually complete the surveys. Gender again did not present a significant zero-order correlation with staff courtesy and helpfulness. Females rated the staff slightly higher than males with means of 4.19 and 4.14, respectively. In terms of beneficiary category, active duty dependents rated the staff significantly lower than the other groups (mean = 4.05, $r = -.093$). Finally, patients did rate the staff courtesy and helpfulness higher after the ICE card initiative than prior to the ICE card initiative (Pre mean = 4.13, Post mean = 4.23). While the correlation was not statistically significant, the relationship is in the direction hypothesized.

The descriptive statistics of the beliefs about the care itself and situation scaled variables are shown in Table 4. Q1 to Q6 of the beliefs about the care itself variables were all rated in the 4.61 to 4.81 range meaning patients somewhat to completely agreed with the positive statement delivered regarding the provider. Similarly, patients were on average somewhat to completely

satisfied with their provider (mean = 4.62). Additionally, all of the beliefs about the care itself questions were highly correlated with overall satisfaction (Pearson's r ranged from .345 to .571).

In terms of the wait time scaled variables, both wait time from appointment to visit and wait time in clinic were rated between good and very good (mean = 3.90 and 3.99, respectively). Additionally, the rated situation variables were highly correlated with both overall satisfaction and the rating of the staff friendliness and courtesy. Finally, the responses to all of the rated items demonstrated high internal consistency (Cronbach's $\alpha = .90$) meaning the results appear reliable.

Table 4. *Descriptive statistics and correlations for beliefs and situation scaled variables (FHC)*

Variable	Mean	SD	r_1	r_2
Beliefs about the care itself				
Q1 - Provider spent time with you required ^b	4.67	.819	.470 ^a	
Q2 - Provider listened to you ^b	4.68	.834	.491 ^a	
Q3 - Provider understood condition ^b	4.65	.853	.493 ^a	
Q4 - Provider treated you with courtesy ^b	4.81	.629	.345 ^a	
Q5 - Provider explained what and why ^b	4.72	.768	.448 ^a	
Q6 - Provider helped with problem ^b	4.61	.893	.522 ^a	
Q7 - Overall satisfaction with provider ^c	4.62	.893	.571 ^a	
Situation variables				
Q11 - Rating of wait time appointment to visit ^d	3.90	1.143	.371 ^a	.510 ^a
Q12 - Rating of wait time in clinic ^d	3.99	1.059	.374 ^a	.653 ^a

N = 643 MACH patients. Item reliability for Q1-Q7, Q11-Q13, and Q21, Cronbach's $\alpha = .90$.

r_1 = Correlation with Y1 - Patient satisfaction with visit.

r_2 = Correlation with Y2 - Courtesy and helpfulness of the staff.

^a Correlations are statistically significant, $p < 0.05$.

^b 5-point bipolar scale: 1, completely disagree; 2, somewhat disagree; 3, neither agree nor disagree; 4, somewhat agree; 5, completely agree.

^c 5-point bipolar scale: 1, completely dissatisfied; 2, somewhat dissatisfied; 3, neither satisfied nor dissatisfied; 4, somewhat satisfied; 5, completely satisfied.

^d 5-point bipolar scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent.

APLSS trend analysis (FHC)

The year over year trend analysis of overall satisfaction based on APLSS data is shown in Figure 13. It demonstrates that the overall satisfaction was higher during only one of the six

months versus the previous year (i.e., December). Additionally, there is no definitive upward or downward trend post ICE card initiative.

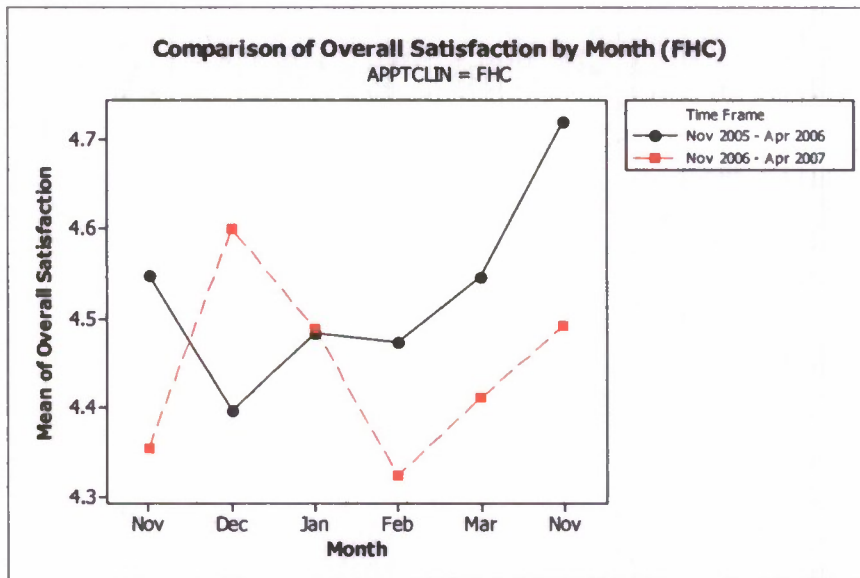


Figure 13. Comparison of APLSS Overall Satisfaction by Month (FHC).

Figure 14 demonstrates that the average staff courtesy and helpfulness rating was higher during four of the six months versus the previous year. Additionally, there appears to be a definitive upward trend during the post ICE card initiative time frame.



Figure 14. Comparison of APLSS Staff Courtesy and Helpfulness by Month (FHC).

Hierarchical multiple linear regression tests for overall satisfaction (H3) in the FHC

Simple mean comparisons and zero-order correlations between patient satisfaction and single variables have less predictive analytic capabilities than multivariate correlation and regression. In order to consider all predictor variables simultaneously and allow an unambiguous estimate of the unique variance in satisfaction with the clinic visit accounted for each predictor variable (or set of categorical variables), while controlling for effects of all other predictors in the equation, hierarchical multiple regression comparisons were conducted with the analyses presented in Table 5.

Table 5. *Hierarchical multiple linear regression tests for overall satisfaction (H3) in the FHC*

Tested Effect(s)	R ² Full	R ² Reduced	R ² Change	df1	df2	F	p
Y1 - Patient satisfaction w/FHC visit model	.465213	.000000	0.465213	22	620	24.515	<i>a</i>
Individual patient variables							
Age group	.465213	.459167	0.006046	5	620	1.402	NS
Gender	.465213	.465211	0.000002	1	620	0.002	NS
Beneficiary category	.465213	.455147	0.010066	4	620	2.917	<i>a</i>
Beliefs about the care itself							
Q1 - Provider spent time with you required	.465213	.465105	0.000108	1	620	0.125	NS
Q2 - Provider listened to you	.465213	.462208	0.003005	1	620	3.484	<i>a</i>
Q3 - Provider understood condition	.465213	.465156	0.000057	1	620	0.066	NS
Q4 - Provider treated you with courtesy	.465213	.462464	0.002749	1	620	3.187	<i>a</i>
Q5 - Provider explained what and why	.465213	.465192	0.000021	1	620	0.024	NS
Q6 - Provider helped with problem	.465213	.462810	0.002403	1	620	2.786	<i>a</i>
Q7 - Overall satisfaction with provider	.465213	.438840	0.026373	1	620	30.575	<i>a</i>
Situation variables							
Q11 - Rating of wait time appointment to visit	.465213	.444490	0.020723	1	620	24.025	<i>a</i>
Q12 - Rating of wait time in clinic	.465213	.464722	0.000491	1	620	0.569	NS
Q13 - Courtesy and helpfulness of the staff	.465213	.451695	0.013518	1	620	15.672	<i>a</i>
Treated by PCM (Continuity of care)	.465213	.461685	0.003528	1	620	4.090	<i>a</i>
ICE Card Initiative	.465213	.464538	0.000675	1	620	0.783	NS
Final patient satisfaction with FHC visit model	.457900	.000000	0.457900	11	631	48.454	<i>a</i>

N = 643 MACH FHC patients. NS, not significant.

^a $p < 0.05$.

The first hypothesis test indicated that the full multiple regression model accounted for > 46% of the variance in patient satisfaction, with $F(22, 620) = 24.515$, $p < 0.05$. Further hypotheses tested the unique effects of predictor variables, representing the three constructs from the attitude model, by calculating the F ratios from the reduction in R^2 produced by the

restrictive model and accounting for the reduction in number of linearly independent predictor variables.

The results indicated one individual patient variable, four belief variables, and three situation variables emerged as statistically significant determinants of patient satisfaction within the FHC. Beneficiary category was the specific individual patient variable accounting for ~ 1 percent of the shared variance in patient satisfaction. The belief variables were provider listened to you, provider treated you with courtesy, provider helped with problem, and overall satisfaction with provider. As expected, overall satisfaction with provider was the most uniquely predictive variable accounting for over 2.5 percent of the variance in overall satisfaction.

In terms of situation variables, the rating of wait time from appointment to visit, the courtesy and helpfulness of the staff, and whether the patient was treated by the PCM demonstrated significant predictive effects while the ICE card initiative was not found to be predictive of overall satisfaction. While this is not the finding expected, it is worth noting that one of the desired outcomes from the ICE card initiative (i.e., improving the courtesy and helpfulness of the staff) was determined to be uniquely predictive. Hence, the findings for whether the ICE card initiative was uniquely predictive of staff courtesy and helpfulness (H4) become essential in the ability to infer whether the initiative had the statistically significant desired effect. The final patient satisfaction with visit model yielded a robust $F(11, 631) = 48.454$, $p < 0.05$ and a coefficient of multiple determination, $R^2 = .458$.

Hierarchical multiple linear regression tests for staff courtesy and helpfulness (H4) in the FHC

The results of the full multiple regression model for predicting staff courtesy and helpfulness accounted for nearly 46 percent of the shared variance with $F(13, 629) = 40.846$, $p < 0.05$ demonstrating construct validity within the model (Table 6). However, only two of the six variables evidenced significant predictive qualities: the rating of wait time from appointment to

visit and the rating of wait time in clinic. The rating of wait time in clinic was by far the most predictive accounting for nearly 18 percent of the shared variance in staff courtesy and helpfulness. While this result was not the expected one, it is understandable considering the longer the wait times in the clinic the lower the patient's perception of staff courtesy and helpfulness. In the end, the ICE card initiative was not found to be uniquely predictive of FHC staff courtesy and helpfulness. The final staff courtesy and helpfulness model yielded a robust $F(2, 640) = 261.236, p < 0.05$ and a coefficient of multiple determination, $R^2 = .449$.

Table 6. *Hierarchical multiple linear regression tests for staff courtesy and helpfulness (H4) in the FHC*

Tested Effect(s)	R ² Full	R ² Reduced	R ² Change	df1	df2	F	p
Y2 - FHC staff courtesy and helpfulness model	.457755	.000000	0.457755	13	629	40.846	a
Individual patient variables							
Age group	.457755	.452895	0.004860	5	629	1.128	NS
Gender	.457755	.456815	0.000940	1	629	1.090	NS
Beneficiary category	.457755	.456233	0.001522	4	629	0.441	NS
Situation variables							
Q11 - Rating of wait time appointment to visit	.457755	.435400	0.022355	1	629	25.932	a
Q12 - Rating of wait time in clinic	.457755	.279483	0.178272	1	629	206.794	a
ICE Card Initiative	.457755	.457217	0.000538	1	629	0.624	NS
Final FHC staff courtesy and helpfulness model	.449449	.000000	0.449449	2	640	261.236	a

N = 643 MACH FHC patients. NS, not significant.

^a $p < 0.05$.

APLSS descriptive statistics and reliability testing (UCC)

The descriptive statistics and correlation for patient satisfaction (Q21); courtesy and helpfulness of the staff (Q13); and the categorical individual patient and situation variables are shown in Table 7. With a mean of 4.21, patients were slight less satisfied than with their visits to the MACH UCC versus the FHC; however, they were still between somewhat and completely satisfied. Additionally, patients rated the overall courtesy and helpfulness of the staff as less than somewhat satisfied (mean = 3.89). Similar to the results in the FHC and with previous studies, younger patients were less satisfied overall than older patients with a range of 3.93 for the 25-34 year old age group to 4.77 for the over 65 age group.

Table 7. Descriptive statistics and correlations for Y1, Y2, and categorical variables (UCC)

Variable	No.	%	Y1 (Pt Sat)			Y2 (Staff)		
			Mean	SD	r ₁	Mean	SD	r ₂
Y1 - Patient satisfaction w/FHC visit ^a	350	100.00	4.21	1.159				
Y2 - Courtesy and helpfulness of the staff ^b	350	100.00	3.89	1.189	.566 ^c	3.89	1.189	
Individual patient variables								
Age group (years)								
0-17	95	27.14	4.21	1.148	-.002	3.75	1.246	-.076
18-24	43	12.29	4.12	1.159	-.032	3.67	1.210	-.069
25-34	54	15.43	3.93	1.315	-.106 ^c	3.70	1.223	-.069
35-44	44	12.57	4.05	1.238	-.055 ^c	3.89	1.104	-.003
45-64	97	27.71	4.40	1.077	.100	4.10	1.150	.109 ^c
≥65	17	4.86	4.77	.562	.107 ^c	4.71	.588	.154 ^c
Gender								
Male	188	53.71	4.23	1.117	.013	4.04	1.082	.130 ^c
Female	162	46.29	4.20	1.082	-.013	3.73	1.285	-.130 ^c
Beneficiary category								
Active Duty /Active Duty Reservist	72	20.57	4.00	1.289	-.094	3.83	1.151	-.026
Active Duty Dependent	131	37.43	4.08	1.222	-.087	3.68	1.254	-.140 ^c
Retired	64	18.29	4.34	1.116	.053	4.23	1.004	.136 ^c
Retired Dependent or Survivor	67	19.14	4.58	.819	.155 ^c	4.15	1.091	.105 ^c
Reservist	16	4.57	4.19	1.109	-.005	3.50	1.461	.073
Situation variables								
Treated by PCM (Continuity of care)								
Yes	2	0.57	4.50	.707	.019			
No	348	99.43	4.21	1.162	-.019			
ICE Card Initiative								
Pre (Nov 2005 - Apr 2006)	163	46.57	4.13	1.197	-.069	3.74	1.206	-.124 ^c
Post (Nov 2006 - Apr 2007)	187	53.43	4.29	1.123	.069	4.03	1.159	.124 ^c

r₁ = Correlation with Y1 - Patient satisfaction with visit.r₂ = Correlation with Y2 - Courtesy and helpfulness of the staff.^a Scale for Y1: 5-point bipolar scale: 1, completely dissatisfied; 2, somewhat dissatisfied; 3, neither satisfied nor dissatisfied; 4, somewhat satisfied; 5, completely satisfied.^b Scale for Y2: 5-point bipolar scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent.^c Correlations are statistically significant, $p < 0.05$.

Gender did not present a significant zero-order correlation with overall satisfaction; however, males were slightly more satisfied than females with means of 4.23 and 4.20, respectively. Additionally, while the directions of the relationships for beneficiary categories was stable from the FHC to the UCC, the retired dependent or survivor category presented the only significant correlation ($r = .155$). The treatment by the PCM (continuity of care) variable was not significant; however, due to the nature of the patients in the UCC only 2 of the 350 patients were treated by their PCM. Therefore, the results from this variable have little reliability

and therefore questionable validity. Finally, the ICE card initiative did present a positive change in patient satisfaction in the UCC (Pre mean = 4.13 versus Post mean = 4.29); however, the relationship was not found to be statistically significant.

In terms of staff courtesy and helpfulness, younger patients once again rated significantly lower than older patients. The 18-24 age group rated the staff the lowest (mean = 3.67) and the greater than 65 age group rated the staff the highest (mean = 4.71). Contrary to previous results, gender did present a significant zero-order correlation with staff courtesy and helpfulness with males rating the staff significantly higher than females (means of 4.04 and 3.73, respectively). In terms of beneficiary category, active duty dependents rated the staff significantly lower than the other groups (mean = 3.68, $r = -.140$) while retirees and their dependents or survivors rated the staff significantly higher than the other groups (mean = 4.23 and 4.15, respectively). In terms of the ICE card initiative, patients did rate the staff significantly higher, as expected, in terms of courtesy and helpfulness after the initiative versus before the initiative ($r = .124$) with a mean of 4.03 and 3.74, respectively.

The descriptive statistics of the beliefs about the care itself and situation scaled variables are shown in Table 8. Q1 to Q6 of the beliefs about the care itself variables were all rated in the 4.41 to 4.67 range meaning patients somewhat to completely agreed with the positive statement delivered regarding the provider. Similarly, patients were on average somewhat to completely satisfied with their provider (mean = 4.41). Additionally, all of the beliefs about the care itself questions were highly correlated with overall satisfaction (Pearson's r ranged from .449 to .612).

In terms of the wait time scaled variables, the actual wait time in the UCC was rated considerably lower than in the FHC (mean = 3.15 versus 3.90). As expected, the rated situation variables were highly correlated with both overall satisfaction and the rating of the staff

friendliness and courtesy. Finally, the responses to all of the rated items demonstrated high internal consistency (Cronbach's $\alpha = .92$) meaning the results appear reliable.

Table 8. *Descriptive statistics and correlations for beliefs and situation scaled variables (UCC)*

Variable	Mean	SD	r_1	r_2
Beliefs about the care itself				
Q1 - Provider spent time with you required ^b	4.43	1.086	.535 ^a	
Q2 - Provider listened to you ^b	4.48	1.056	.538 ^a	
Q3 - Provider understood condition ^b	4.51	.989	.478 ^a	
Q4 - Provider treated you with courtesy ^b	4.67	.818	.449 ^a	
Q5 - Provider explained what and why ^b	4.43	1.099	.516 ^a	
Q6 - Provider helped with problem ^b	4.45	1.069	.536 ^a	
Q7 - Overall satisfaction with provider ^c	4.41	1.084	.612 ^a	
Situation variables				
Q11 - Rating of wait time appointment to visit ^d	3.73	1.046	.394 ^a	.530 ^a
Q12 - Rating of wait time in clinic ^d	3.15	1.502	.486 ^a	.684 ^a

N = 350 MACH patients. Item reliability for Q1-Q7, Q11-Q13, and Q21, Cronbach's $\alpha = .92$.

r_1 = Correlation with Y1 - Patient satisfaction with visit.

r_2 = Correlation with Y2 - Courtesy and helpfulness of the staff.

^a Correlations are statistically significant, $p < 0.05$.

^b 5-point bipolar scale: 1, completely disagree; 2, somewhat disagree; 3, neither agree nor disagree; 4, somewhat agree; 5, completely agree.

^c 5-point bipolar scale: 1, completely dissatisfied; 2, somewhat dissatisfied; 3, neither satisfied nor dissatisfied; 4, somewhat satisfied; 5, completely satisfied.

^d 5-point bipolar scale: 1, poor; 2, fair; 3, good; 4, very good; 5, excellent.

APLSS trend analysis (UCC)

The year over year trend analysis of overall satisfaction based on APLSS data is shown in Figure 15. It demonstrates that the overall satisfaction was higher during 4 of the 6 months versus the previous year. Additionally, there seemed to be an unusually low overall satisfaction rating during December 2006 which may be due to a shortage of providers during that period. While no definitive trend can be determined, it is of note that the final two months of the study, March and April 2007, exhibited the only consecutive monthly increases in overall satisfaction.

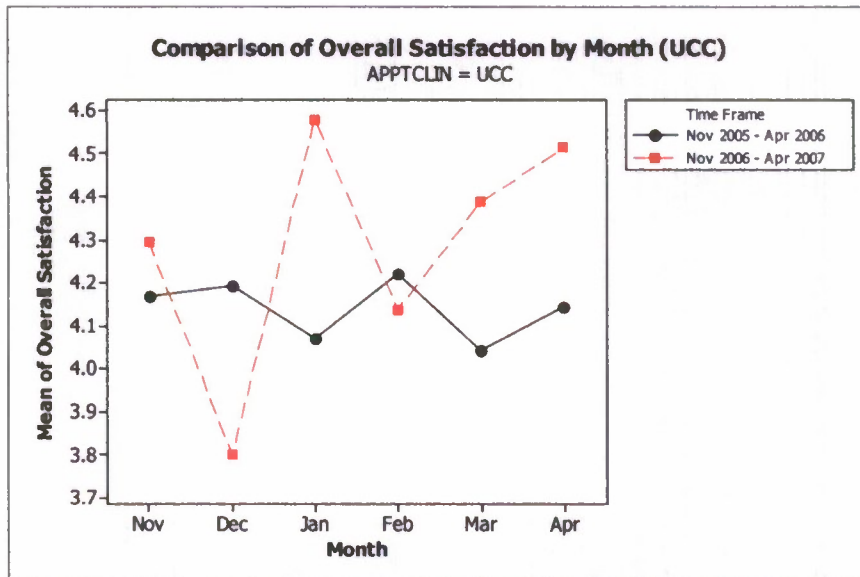


Figure 15. Comparison of APLSS Overall Satisfaction by Month (UCC).

Figure 16 demonstrates that the average staff courtesy and helpfulness rating was higher during four of the six months versus the previous year. Additionally, the highest ratings for staff courtesy and helpfulness were evidenced during the last two months of the study (March and April 2007) indicating a new higher standard may have emerged over time.

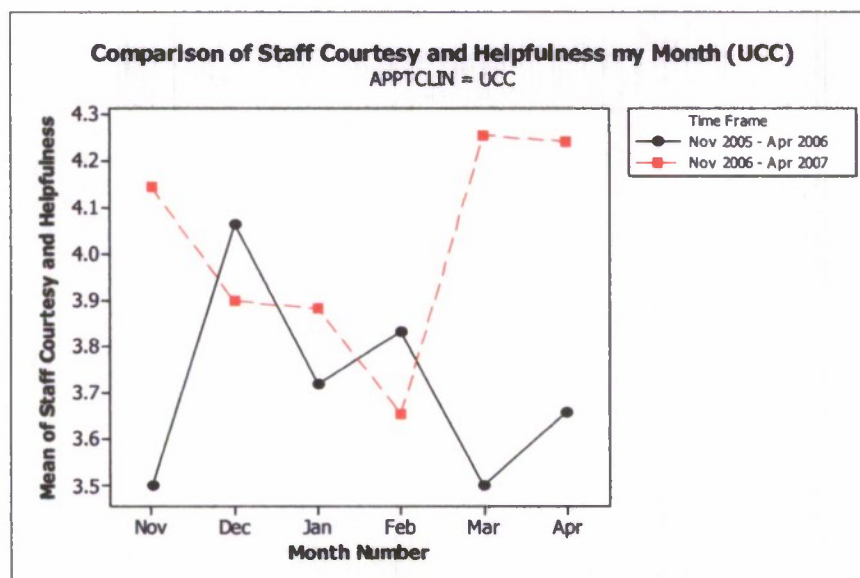


Figure 16. Comparison of APLSS Staff Courtesy and Helpfulness by Month (UCC).

Hierarchical multiple linear regression tests for overall satisfaction (H3) in the UCC

The initial test of the patient satisfaction model in the UCC accounted for > 54% of the variance with $F(22, 327) = 17.703$, $p < 0.05$ (Table 9). Further results indicated zero individual patient variables, 1 belief variable, and 2 situation variables emerged as statistically significant determinants of patient satisfaction within the UCC. The significant predictors of overall satisfaction in the UCC were overall satisfaction with provider, rating of wait time in clinic, and courtesy and helpfulness of the staff.

Table 9. *Hierarchical multiple linear regression tests for overall satisfaction (H3) in the UCC*

Tested Effect(s)	R ² Full	R ² Reduced	R ² Change	df1	df2	F	p
Y1 - Patient satisfaction w/FHC visit model	.543594	.000000	0.543594	22	327	17.703	<i>a</i>
Individual patient variables							
Age group	.543594	.538687	0.004907	5	327	0.703	NS
Gender	.543594	.543564	0.000030	1	327	0.021	NS
Beneficiary category	.543594	.541442	0.002152	4	327	0.385	NS
Beliefs about the care itself							
Q1 - Provider spent time with you required	.543594	.543347	0.000247	1	327	0.177	NS
Q2 - Provider listened to you	.543594	.542811	0.000783	1	327	0.561	NS
Q3 - Provider understood condition	.543594	.543276	0.000318	1	327	0.228	NS
Q4 - Provider treated you with courtesy	.543594	.543362	0.000232	1	327	0.166	NS
Q5 - Provider explained what and why	.543594	.543583	0.000011	1	327	0.008	NS
Q6 - Provider helped with problem	.543594	.541672	0.001922	1	327	1.377	NS
Q7 - Overall satisfaction with provider	.543594	.5006682	0.042926	1	327	30.755	<i>a</i>
Situation variables							
Q11 - Rating of wait time appointment to visit	.543594	.542370	0.001224	1	327	0.877	NS
Q12 - Rating of wait time in clinic	.543594	.534962	0.008632	1	327	6.185	<i>a</i>
Q13 - Courtesy and helpfulness of the staff	.543594	.506800	0.036794	1	327	26.362	<i>a</i>
Treated by PCM (Continuity of care)	.543594	.543391	0.000203	1	327	0.145	NS
ICE Card Initiative	.543594	.542848	0.000746	1	327	0.534	NS
Final patient satisfaction with FHC visit model	.527943	.000000	0.527943	3	346	128.987	<i>a</i>

N = 350 MACH UCC patients. NS, not significant.

^a $p < 0.05$.

While the predictor variables identified are not surprising, the few number of variables included in the final model does present a surprising result considering previous findings both in the FHC and in other studies. As expected, overall satisfaction with provider was the most uniquely predictive variable accounting for over 4 percent of the variance in overall satisfaction. However, the rating of courtesy and helpfulness of the staff accounted for nearly 3.7 percent of the variance demonstrating the high level of importance this variable holds for UCC patients.

The uniquely predictive qualities of the courtesy and helpfulness of the staff variable once again gives credence to attempting to improve satisfaction by improving staff courtesy and helpfulness. The final patient satisfaction with visit model yielded a robust $F(3, 346) = 128.987$, $p < 0.05$ and a coefficient of multiple determination, $R^2 = .528$.

Hierarchical multiple linear regression tests for staff courtesy and helpfulness (H4) in the UCC

The results of the full multiple regression model for predicting staff courtesy and helpfulness in the UCC accounted for nearly 52 percent of the shared variance with $F(13, 336) = 27.792$, $p < 0.05$ again demonstrating construct validity within the staff courtesy and helpfulness model (Table 10).

Table 10. *Hierarchical multiple linear regression tests for staff courtesy and helpfulness (H4) in the UCC*

Tested Effect(s)	R ² Full	R ² Reduced	R ² Change	df1	df2	F	p
Y2 - UCC staff courtesy and helpfulness model	.518136	.000000	0.518136	13	336	27.792	a
Individual patient variables							
Age group	.518136	.515120	0.003016	5	336	0.421	NS
Gender	.518136	.512114	0.006022	1	336	4.199	a
Beneficiary category	.518136	.511198	0.006938	4	336	1.209	NS
Situation variables							
Q11 - Rating of wait time appointment to visit	.518136	.459706	0.058430	1	336	40.743	a
Q12 - Rating of wait time in clinic	.518136	.324840	0.193296	1	336	134.784	a
ICE Card Initiative	.518136	.517616	0.000520	1	336	0.363	NS
Final UCC staff courtesy and helpfulness model	.503931	.000000	0.503931	3	346	117.161	a

N = 350 MACH UCC patients. NS, not significant.

^a $p < 0.05$.

In the UCC, three of the six variables evidenced significant predictive qualities: gender; the rating of wait time from appointment to visit; and the rating of wait time in clinic. Similar to previous results, gender provided the only difference when compared to the FHC. The rating of wait time in clinic was again the most predictive accounting for over 19 percent of the shared variance in staff courtesy and helpfulness. In the end, the ICE card initiative was not found to be uniquely predictive of UCC staff courtesy and helpfulness. The final staff courtesy and

helpfulness model yielded $F(3, 336) = 117.161, p < 0.05$ and a coefficient of multiple determination, $R^2 = .504$.

Discussion

The direct results of the ICE card initiative predicted for overall satisfaction are demonstrated when analyzing the responses from ICE card surveys. The ICE card results clearly reveal that the overall satisfaction scores increased in each of the clinics when evaluated from one year to the next. Thus, H1 was found to have some merit; however, the low response rates during the Pre period do not make the results particularly reliable or powerful.

The tests for H2 yielded results similar to the results from H1; however, the results for the trend comparison of average attitude rating are less definitive especially in the UCC. The results do reveal that the attitude scores increased in each of the clinics when evaluated from one year to the next. Thus, H2 was also found to have some merit; however, the low response rates during the Pre period again make the results subject to error.

The tests for H3 based upon results from APLSS data demonstrate different results than those hypothesized. First, the overall satisfaction decreased from Pre to Post period in the FHC. Second, the increase in overall satisfaction in the UCC was not statistically significant either in zero-order correlation or when tested via hierarchical multiple regression. However, staff courtesy and helpfulness was a significant predictor in both clinics; therefore, the concept of improving overall satisfaction by improving staff courtesy and helpfulness appears to have some merit.

Finally, the tests for H4 revealed that the wait time in clinic was an overwhelmingly significant factor when patients rated the courteousness and helpfulness of the staff; therefore, the ICE card initiative was not significant when the other factors were held constant. However, both clinics did show an improvement in staff courtesy and helpfulness between the Pre and Post

initiative periods with 4 of the 6 months considered in each clinic demonstrating higher ratings during the Post period. In the end, the significant positive zero-order correlation between the ICE card initiative and staff courtesy and helpfulness in the UCC indicates there is some merit to the ICE card initiative increasing staff courtesy and helpfulness.

Conclusions and Recommendations

Based upon the mixed results presented by this study of the ICE card initiative at MACH, one could conclude that the ICE card initiative creates a positive end to itself. In other words, the ICE card initiative provided a better sample of ICE card responses and overall satisfaction and staff attitude based upon these responses did increase significantly in both clinics studied. Therefore, if a hospital commander or deputy commander for administration is attempting to improve ICE card results, the ICE card initiative appears to be a method of achieving that goal.

Unfortunately, the same can not be said for actually improving overall satisfaction scores on a time tested, reliable instrument such as the APLSS where the decrease in overall satisfaction in the FHC from the Pre to Post period demonstrates a disappointing result. On the positive side, the models for patient satisfaction and staff courtesy and attitude were robust and primarily aligned with expectations. Additionally, based on the significant predictive qualities of staff courtesy and helpfulness on overall satisfaction at Moncrief, initiatives that attempt to improve these qualities in the staff should improve satisfaction and ultimately benefit the patient. In the end, it appears that the ICE card initiative did improve staff courtesy and helpfulness but not significantly enough to improve overall satisfaction. Therefore, further research with larger sample sizes would be required before recommending implementation of this initiative as a method of improving overall APLSS satisfaction scores at other clinics or facilities.

References

- Andaleeb, S. S. (2001). Service quality perceptions and patient satisfaction: A study of hospitals in a developing country. *Social Science & Medicine*, 52(9), 1359-1370.
- Barido, G. T., Campbell-Gauthier, G. D., Mang-Lawson, A. M., Mangelsdorff, A. D., & Finstuen, K. (in press). *Patient satisfaction in military medicine: Model refinement and assessment of continuity of care effects*. *Military Medicine*.
- Barkley, W. M., & Furse, D. H. (1996). Changing priorities for improvement: The impact of low response rates in patient satisfaction. *Journal of Quality Improvement*, 22(6), 427-33.
- Beach, M. C., Sugarman, J., Johnson, R. L., Arbelaez, J. J., Duggan, P. S., & Cooper, L. A. (2005). Do patients treated with dignity report higher satisfaction, adherence, and receipt of preventive care? *Annals of Family Medicine*, 3(4), 331-338.
- Burroughs, T. E., Waterman, B. M., Gilin, D., Adams, D., McCollegan, J. C., & Cira, J. (2005). Do on-site patient satisfaction surveys bias results? *Joint Commission Journal on Quality and Patient Safety*, 31(3), 158-166.
- Fan, V. S., Burman, M., McDonell, M. B., & Fihn, S. D. (2004). Continuity of care and other determinants of patient satisfaction with primary care. *Journal of General Internal Medicine*, 20(3), 226-233.
- Festinger L. (1954). A theory of social comparison processes. *Human Relations*, 7, 114-140.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology*, 58, 203-210.
- Fincham, J., & Wertheimer, A. (1986). Predictors of patient satisfaction in a health maintenance organization. *Journal of Health Care Marketing*, 6(3), 5-11.

- Fishbein, M. (1967). *Readings in Attitude Theory and Measurement*. New York: Wiley.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Green, A., & Davis, S. (2005). Toward a predictive model of patient satisfaction with nurse practitioner care. *Journal of the American Academy of Nurse Practitioners*, 17(4), 139-148.
- Gribble, R. K., & Haupt, C. (2005). Quantitative and qualitative differences between handout and mailed patient satisfaction surveys. *Medical Care*, 43(3), 276-281.
- Jackson, J. L., Chamberlin, J., & Kroenke, K. (2001). Predictors of patient satisfaction. *Social Science & Medicine*, 52(4), 609-620.
- Lawler, E. E. (1971). *Pay and Organisational Effectiveness: A Psychological View*. New York: McGraw- Hill.
- Linder-Pelz, S. (1982a). Social psychological determinants of patient satisfaction: A test of five hypotheses. *Social Science and Medicine*, 16, 583-589.
- Linder-Pelz, S. (1982b). Toward a theory of patient satisfaction. *Social Science and Medicine*, 16, 577-82.
- Loy, E. (2007). Interactive Customer Evaluation (ICE) System Policy. Memorandum for existing and potential users of the ICE system. Department of Defense. Washington Headquarters Service: Washington, DC.
- Mangelsdorff, A. D., & Finstuen, K. (2003). Patient satisfaction in military medicine: Status and an empirical test of a model. *Military Medicine*, 168, 744-749.
- Mangelsdorff, A. D., Finstuen, K., Larsen, S. D., & Weinberg, E. J. (2005). Patient satisfaction in military medicine: Model refinement and assessment of Department of Defense effects. *Military Medicine*, 170, 309-314.

- Morgan, E. D., Pasquarella, M., & Holman, J. R. (2004). Continuity of care and patient satisfaction in a family practice clinic. *Journal of the American Board of Family Practice, 17*(5), 341-346.
- Nelson, E. C., Larson, C. O., Davies, A. R., Gustafson, D., Ferreira, P. L., & Ware, J. E. Jr. (1991). The patient comment card: A system to gather customer feedback. *Quality Review Bulletin, 17*(9), 278-286.
- Nutting, P. A., Goodwin, M. A., Flocke, S. A., Zyzanski, S. J., & Stange, K. C. (2003). Continuity of primary care: To whom does it matter and when? *Annals of Family Medicine, 1*(3), 149-155.
- Tucker, J. L. (1998). The importance of caring as a determinant of patient satisfaction among active duty beneficiaries. *Military Medicine, 163*, 758-760.
- Tucker, J. L., & Adams, S. R. (2001). Incorporating patients' assessments of satisfaction and quality: An integrative model of patients' evaluations of their care. *Managing Service Quality, 11*(4), 272-86.
- Tucker, J. L., & Kelley, V. A. (2000). The influence of patient sociodemographic characteristics on patient satisfaction. *Military Medicine, 165*, 72-76.
- Tucker, J. L., & Manchus, G. M. (1998). The predictors of quality care. *Military Medicine, 163*, 754-757.
- Vroom, V.H. (1964). *Work and Motivation*. New York: Wiley.
- Yancy, W. S., Macpherson, D. S., Hanusa, B. H., Switzer, G. E., Arnold, R. M., Buranosky, R. A., Kapoor, W. N. (2001). Patient satisfaction in resident and attending ambulatory care clinics. *Journal of General Internal Medicine, 16*(11), 755-762.

Appendix A

How was your Moncrief Army Community Hospital (MAC H) Experience???

Help us move forward at MACH Speed!

If you have a comment now, simply flip this over, leave us a note, and drop it in any of our suggestion boxes. It will be submitted as an Interactive Customer Evaluation (ICE) system comment. If you need immediate assistance ask for the NCOIC, Head Nurse, OIC, or Patient Representative (803-751-2123). We appreciate all comments – good or bad.

If you receive a satisfaction survey from the Department of Defense Health Affairs Office about your visit at Moncrief Army Hospital, please take the time to provide your honest feedback and return it or call it in to the new Interactive Voice Response system for the Provider-level patient satisfaction survey.

Thank you,
The Moncrief Army Community Hospital Staff



Please tell us how we did.

Click visited: _____ Date visited: _____

CUSTOMER SERVICE: Excellent Good OK Poor Awful N/A

Facility Appearance: 0 0 0 0 0 0

Employee Staff Attitude: 0 0 0 0 0 0

Timeliness of Service: 0 0 0 0 0 0

Hours of Service: 0 0 0 0 0 0

Did the product or service meet your needs?: Yes No

Were you asked to verify your address and phone number?: Yes No N/A

Were you asked if you have Other Health Insurance (OHI)? Yes No N/A

Was your medical record present for your appointment?: Yes No N/A

SATISFACTION: Where you satisfied with your experience? Yes No

Who was the friendliest? Provider Med Asst Receptionist

Who was the least friendly? Provider Med Asst Receptionist

Staff member (s) who excelled: _____

Additional Comments/Suggestions: _____

(Indicate if you made an appointment on www.fitzhughline.com) Yes No

Optional: Name: _____ Phone: _____

E-mail: _____

Appendix B

00004763 6H45 5548 021 121907068831212121 06A

DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
SURVEY PROGRAM OFFICE (SUITE 669)
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258



Please use pen or dark pencil to mark an "X" in the answer box.

Correct Incorrect

EXAMPLES:



Please return your completed questionnaire in the enclosed envelope to, P.O. Box 5033, Chicago, IL 60680.

Army Patient Satisfaction Survey

We need your help. We are trying to improve the quality of care we give our Soldiers and their families.

According to our records you recently had a healthcare visit with [REDACTED] on [REDACTED] at the Moncrief Army Community Hospital. Is this correct?

- Yes ☐ → Please continue with the survey.
No, saw someone else... ☐ → Please continue with Q9.
No, didn't have visit ☐ → Please stop and return your survey now.

Thinking specifically about your visit with [REDACTED] on [REDACTED] at the Moncrief Army Community Hospital, please rate how much you disagree or agree with each of the following. Please mark an "X" in the box for the answer that is closest to your opinion.

	Completely Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Completely Agree
1. This provider, [REDACTED], spent the time with you that your medical problem required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. This provider listened to you carefully about your concerns and questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. This provider understood your problem or condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. This provider treated you with courtesy and respect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. This provider explained what was being done and why	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. This provider helped you with your problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Completely Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Completely Satisfied
7. Overall, how satisfied do you feel about your visit with [REDACTED]	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Which of the following best describes your familiarity with [REDACTED]?					
This provider is my Primary Care Manager (PCM) whom I see for most of my routine care	<input type="checkbox"/>				
This provider is not my PCM, but I had met or heard of him/her before this visit		<input type="checkbox"/>			
This provider is not my PCM, I had a referral to see this provider			<input type="checkbox"/>		
This provider is not my PCM, and I had never met or heard of him/her before this visit				<input type="checkbox"/>	

Please turn over and continue on the back page.

ICE Card Initiative

Please tell us how you were treated by staff before and after you saw the healthcare provider. Still thinking about your visit with [REDACTED] on [REDACTED], please rate the following aspects of your care and service during that visit:

	<u>No Experience</u>	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
9. The overall phone service you received in scheduling the appointment for this visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. How well your needs and schedule were taken into consideration when this appointment was scheduled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The amount of time from when you made the appointment until you actually saw the health care provider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The amount of time you waited at the clinic to see the healthcare provider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Courtesy and helpfulness of the staff during this visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. The coordination among all the people who cared for you during this visit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. The cleanliness of the facility you visited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The comfort of the facility you visited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The convenience of the facility you visited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you also went to the Pharmacy, Laboratory or Radiology Department in conjunction with your visit on [REDACTED], please rate your experience with these services:

	<u>No Experience</u>	<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>	<u>Excellent</u>
18. Overall, how would you rate your visit to the Pharmacy?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Overall, how would you rate your visit to the Laboratory?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Overall, how would you rate your visit to the Radiology Department?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any comments about your visit with [REDACTED] on [REDACTED]?

21. Everything considered, how satisfied were you with Moncrief Army Community Hospital during this visit?

<u>Completely Dissatisfied</u>	<u>Somewhat Dissatisfied</u>	<u>Neither Satisfied nor Dissatisfied</u>	<u>Somewhat Satisfied</u>	<u>Completely Satisfied</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you very much for your opinions. Please return this survey today in the self-addressed envelope.

ATTN: AMEDD SURVEY CENTER
P.O. BOX 5033
CHICAGO, IL 60680